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# **Cyborg Music: A Future Musicotechnographic Aesthetic**

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## **Abstract**

This ~~dissertation~~-assemblage is a rhizo-text of a rhizo-enquiry. It is part musico-ethnography and part philosophical analysis. It looks at the work(ing practices) of four contemporary musickers. It situates a rhizo-analysis of their work, as described in four vignette studies, in discussions of, *inter alia*, rhizo-aesthetics, cyborgs, and boundaries in Entangled Network Space. It includes a speculative consideration of what might happen to music and musicking in the future, especially in the light of current trends in the expansion of technicity in their methods of composition, production, and distribution. It draws particularly on the philosophical writings of Alfred North Whitehead, Gilles Deleuze (particularly in association with Félix Guattari), Bernard Stiegler, Bruno Latour, Manuel DeLanda, Christopher Vitale, and Ian Hodder.

## Acknowledgements

As an intellectual nomad, journeying through the incorporeal world of the musico-philosophical rhizome has sometimes seemed a particularly solitary task. Fortunately, my real world companions have always been close at hand to offer their love and support. Both of my parents always encouraged me in my academic pursuits. My Dad still does, but my dear Mum, who saw me embark on this doctoral stage of my education, sadly is not here to see it come to an end.

I am indebted to the many academics and fellow-students who have taken an interest in this project and who have encouraged me along the way, both formally and informally. But I must give a special mention to those who helped me, and particularly at the research application stage, whose generous gift of their time ensured that my disparate and inchoate thoughts became a research proposal worthy of acceptance by the Open University and funding by the Arts and Humanities Research Council through the CHASE Doctoral Training Partnership. Those academics are: my supervisors, Dr Robert Samuels, Dr David Roden, and Dr Martin Clarke; my academic referees, Dr George Mowat-Brown and Dr Adrian Hull; Professor Catherine Tackley, Dr Helen Coffey, Professor Christopher Norris, and Professor Amanda Bayley. Thanks are also due to Dr Byron Dueck and Professor Derek Matravers who gave me invaluable advice and feedback at the end of the probationary stage of the project.

The research rhizome has long tentacles. All of my teachers at Bec School in Tooting in London in the 1970s were superb. My music teacher, Ted Bloomfield, was passionate about musical education. My English teacher, Terry Mulhern, taught me a love of, and respect for, language and was, I now realise, a philosopher first and foremost. The influences of them both are interwoven in the pages of this dissertation-assemblage. But principally, my love, thanks, and appreciation go to my darling wife Chris, who is my bedrock and without whom nothing would be worth doing at all.



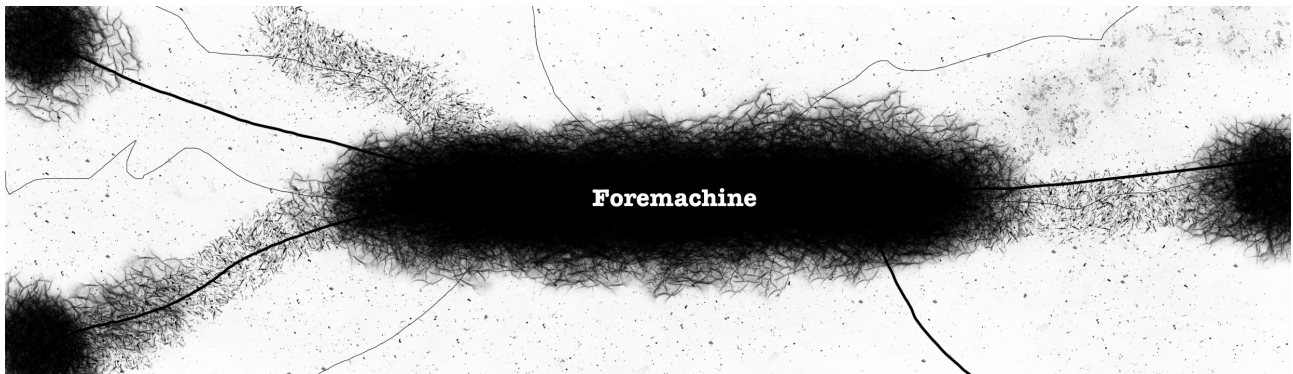
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-----> and... and... and... you arrive here on a line of flight...

## Foremachine

A beginning. A vignette. In 1960 my parents bought me a present for my fourth birthday. It was a battery-powered toy record player complete with about half a dozen 45 rpm records. The only disc I can remember had a version of *She'll Be Coming 'Round the Mountain When She Comes* on one side and *O Susanna* on the other. I played that disc so often that through scratching and general deterioration, it became unplayable, issuing nothing but glitchy screeches and crackles. But it was my introduction to selectable music and technology as a means to reproduce it. I will leave others to ponder whether that particular listener-record-musicking assemblage had any aesthetic merit, but it was certainly affective.

Where to start? This ~~dissertation~~-assemblage is a rhizomachine. Rhizomes have no beginnings and no endings. Everything about a rhizome is *in media res*, a *milieu*. The writing-collective-assemblage JKSB say this:

Rather than a book that constructs cumulative arguments and coherent conclusions, we wish to present a text that invites lines of flight between its sections, between its writers and between its readers, that opens toward settlements and understandings that are merely momentary and always provisional.

Wyatt, Gale, Gannon, and Davies 2011: 15

When submitting a thesis for examination, a declaration to the effect that it is the candidate's own work is required. This declaration is not true. Certainly, I am responsible for arranging the words and diagrams herein in the order that they appear. Where I quote

others' words, they are acknowledged in the required manner. But all writing is a collaborative act. My collaborators are connected to me by lines of flight. They are living and dead. Borges said, "A book is not an isolated being: it is a relationship, an axis of innumerable relationships" (Borges 2018). As Davies says, "To the extent that we are persons then, we are no more than inflections on lines. Our collaboration brings lines together to see what happens when they intersect, and unravel" (Wyatt, Gale, Gannon, and Davies 2011: 26). Deleuze says, "Even when you think you're writing on your own, you're always doing it with someone else you can't always name" (Deleuze 1995: 141 quoted in *ibid.*: 43). Just as those collaborative ghosts (living and dead) are ever-present in this (or any) text, so am I as the inextricable notional author of this dissertation-assemblage. Honan points out that the metaphor of 'baggage' has been taken up in psychoanalytical and psychological discourses to describe "the unbearable burden of past experiences" (Honan 2001: 31). Is that personal 'baggage' a help or a hindrance in the construction of a new text? By including the embodied self in the writing process, Honan says that it makes such baggage visible to the research (rhizoanalytical) process (*ibid.*). She quotes Scheurich:

The crux of the issue is the interpretive moment as it occurs throughout the research process. And, into this moment, the researcher brings considerable conscious and unconscious baggage — other related research, training within a particular discipline (such as anthropology), epistemological inclinations, institutional and funding imperatives, conceptual schemes about story-telling or power, social positionality (the intersection of race, class, gender, sexual-orientation, among other key social locations), macro-cultural or civilizational frames (including the research frame itself); and individual idiosyncrasies, the interactions of which are themselves complex and ambiguous (Scheurich, 1997, pp. 73 – 74).

Honan 2001: 31

Since one cannot be rid of life's baggage, it might as well be acknowledged and referenced as it arises implicitly or explicitly in the construction of the text, complex and ambiguous. Just as this dissertation-assemblage cannot be said to begin anywhere, in

virtue of the fact that ~~begin~~ is *sous rature* (under erasure)<sup>1</sup> neither can it be said to ~~begin~~ at any time. I will explain this further later.

How can my research be analysed in a rhizomatic way? Is it possible to “strain against the boundaries of ‘acceptable’ practices and approaches?” (Honan and Bright 2016: 738).

They go on to say:

[For those] who are completing doctoral studies this can be exceptionally challenging, as they struggle to conform to the official expectations of a thesis while at the same time paying attention to Deleuze’s ideas about the non-linear and unbounded nature of text. The question becomes not “how does it work?”, but rather “how does it work in a way that will satisfy university requirements?” This requires an understanding that “evolving genres of representation do not reject academic writing but strain at the very limits of what writing can mean” (Somerville, 2012: 540).

Honan and Bright 2016: 738

The issue is one of constructing an “evolving genre” that will, nonetheless, satisfy the requirements of the university without, as Gannon puts it, “sagging into academic rhetoric” (Wyatt, Gale, Gannon, and Davies 2011: 46). To ‘satisfy university requirements’ means that there are boxes to be ticked and points to be acquired, for points mean prizes. On its ~~surface~~, therefore, this ~~dissertation~~-assemblage can be read conventionally. It consists of a number of pages. There are signposts to the material, contained in what look like conventional chapters. There are citations and bibliographic references. These are the box-ticking aspects of the ~~dissertation~~-assemblage. Honan struggles with the notion of “constrict[ing] a piece of writing [...] to the narrow definition of a thesis: that is, *a proposition laid down or stated* (new Shorter Oxford Dictionary), in this postmodern world of the 21st

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<sup>1</sup>I have let these ~~crossings-out~~ go unremarked so far. Here is a short explanation. Some words in this text appear like this, “~~dissertation~~”. Such words are said to be *sous rature* which may be translated into English as “under erasure”. It is a term used by Derrida, who develops a concept introduced by Heidegger. It indicates something which is inaccurate yet necessary. “This is to write a word, cross it out, and then print both the word and deletion. (Since the word is inaccurate it is crossed out. Since it is necessary, it remains legible)” (Spivak, Translator’s Preface, in Derrida 1997: xiv). It is, Spivak says, “the strategy of using the only available language while not subscribing to its premises” (ibid.: xviii). I use the strategy for similar reasons to Derrida, because otherwise, “At each step I was obliged to proceed by ellipses, corrections and corrections of corrections, letting go of each concept at the very moment that I need to use it” (ibid.: xviii). It is a technique, a shorthand, for pointing out the inadequacies of a word, without detouring into long circumlocutions which, ultimately prove equally inadequate. Whenever a word or phrase appears *sous rature* in this text it should provoke (incite) the reader to follow lines of flight.

Century” (Honan 2001: 1). To read this ~~dissertation~~-assemblage as a constricted answer to a sharply defined research question would be to miss its point(s).

The ~~original~~ research question was itself the result of a collaborative process, between me and other academics who were advising me about the doctoral application process. At that time, it was, I now see, a constricted question. At the time of submitting the research question for approval, my stated aim was to consider the question in the light of (*inter alia*) the philosophy of Deleuze. I did not know then just how much an immersion in a Deleuzian way of thinking and analysing would change my approach to the question itself. In a *viva voce* examination, an earlier PhD candidate was asked, “You don’t think that your work suffers from an overemphasis on the work of Deleuze? He is a central figure in your work; would it be fair to say that his presence in your dissertation is somewhat obsessive? What do you think?” (Gale, Speedy and Wyatt 2010: 27). Gale replied to his interlocutor:

Yes, I think you are right to say that Deleuze plays a central role but I don’t think we<sup>2</sup> are obsessive in our use of his work. For myself, throughout my life, I have been drawn to philosophies of rebellion and resistance. They have attracted me and helped to mobilize my idealism, my thoughts, and actions. So my thinking, feeling, and writing in this dissertation has been charged by the writing of Marx, of Foucault, and now, most recently, by Deleuze. These are my ancestors! But, as I say explicitly in the writing, there have been many others: Without effort I think of Sartre and De Beauvoir, Kerouac and Ginsberg, and Irigaray and Butler, but, if I think of a history, a chronology, then it is these three that seem to signify important stages in my life. I find it fascinating that whilst each gradually over time has displaced the other in terms of my thinking, sentiment still draws me back, from time to time, to their historical predecessor. So, yes, Deleuze *is* important, very important, but I want to stress the importance of looking at the way in which he resides with the other inhabitants of our work.

Ibid.

I approach this ~~dissertation~~-assemblage in a similar way, idiosyncratically, complexly and ambiguously. We, each of us, are constellations of our own thoughts and those of other writers and thinkers. Gale, in the quote above, emphasises the diachronic nature of our influence(r)s, how ebb and flow in our reliance upon one and then others means that there is never a ~~nœw~~, a position of stasis, in our writing or thinking. So, like Gale, I say that

---

<sup>2</sup> It was a jointly-submitted dissertation.

Deleuze *is* important in this ~~dissertation~~-assemblage, but in conjunction with myriad others. Some are quoted directly in the text, some hinted at more obliquely in footnotes or bibliographic references, while yet others inhabit the recesses of my (extended<sup>3</sup>) mind.

Deleuze and Guattari (1987) call their chapters in *A Thousand Plateaus* just that, 'Plateaus'. Other writers have done the same. The ~~chapters~~ in this ~~dissertation~~-assemblage are called 'machines', because they function as Deleuzian 'abstract machines'. This concept will be explained later. Each of these ~~chapters~~/abstract machines maps and deals with a notionally different part of the musicking rhizome, but each map has tentacles, lines of flight, which connect to (the) other maps and machines. There are no boundaries, only conjunctive entanglements. Its ~~structure~~ is an antidote to the "ruthlessly linear nature of the narrative of knowledge production in research methodology" (St Pierre 1997: 179, quoted in Honan 2001: 2).

How is this ~~dissertation~~-assemblage to be read? Any way you like — "for laughs" (Deleuze and Guattari 1987: 24). But ~~wherever~~ you start you will be in the middle:

A rhizome has no beginning or end; it is always in the middle, between things, interbeing, *intermezzo*. The tree is filiation, but the rhizome is alliance, uniquely alliance. The tree imposes the verb "to be," but the fabric of the rhizome is the conjunction, "and... and... and..." This conjunction carries enough force to shake and uproot the verb "to be."

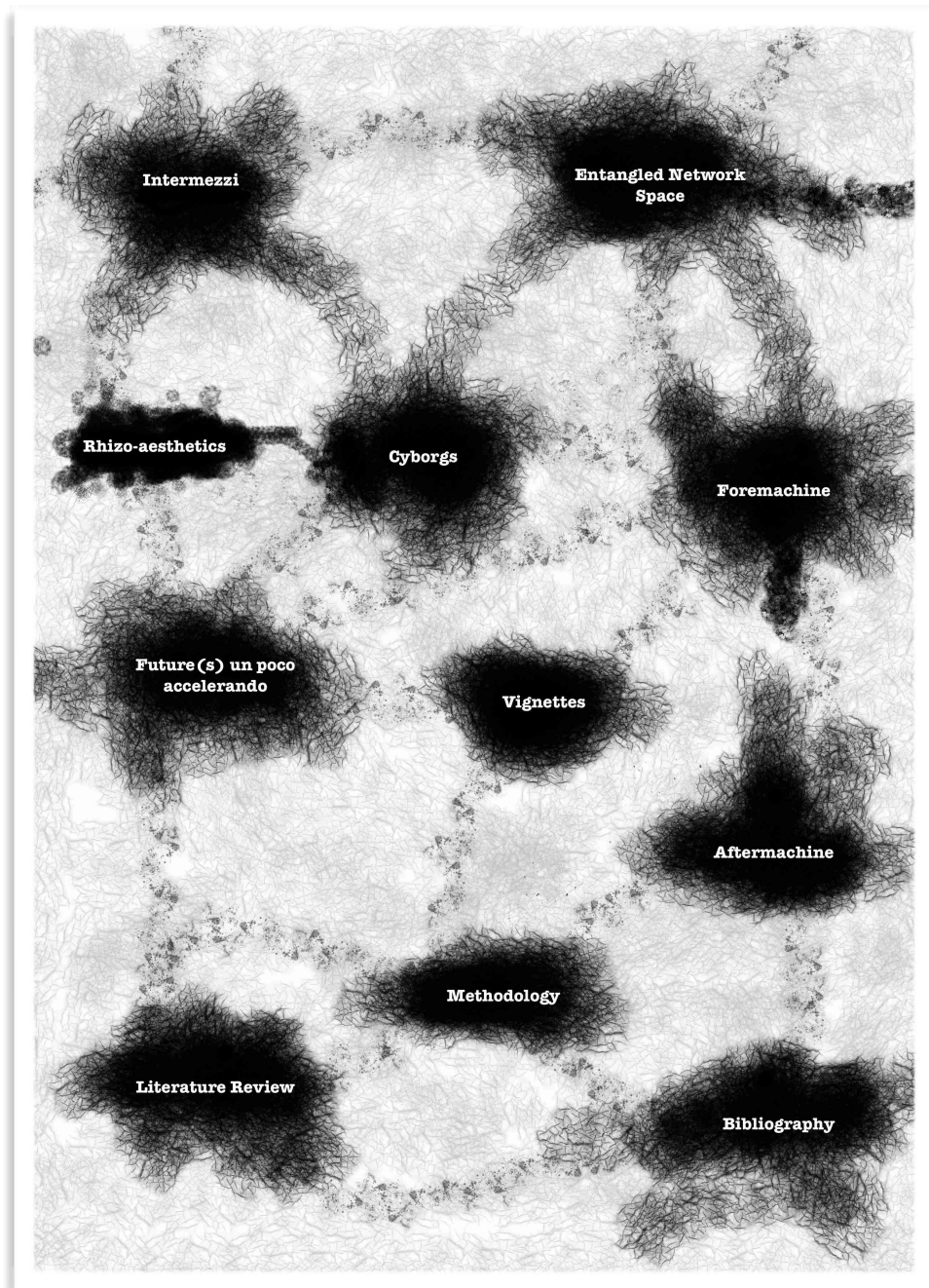
Ibid.: 27

But seeing and grasping things in the middle is not always easy: if we try to look at things from the middle, "rather than looking down on them from above or up at them from below, or from left to right or right to left: try it, you'll see that everything changes [...]" (ibid.: 25). Following Sellers, who says, "So, I try it, I just try negotiating the middle, from anywhere..." (Sellers 2009: 6), let us try. This ~~dissertation~~-assemblage fades in... and fades out.

---

<sup>3</sup> See the Cyborgs abstract machine for more on The Extended Mind Hypothesis, a contested hypothesis, but one which has merit in terms of the assemblages which are discussed in this ~~dissertation~~-assemblage.





**Fig. 1 Plan of chapters/abstract machines in the dissertation-assemblage**

The diagram (Fig.1) is a machinic map of machinic maps within the dissertation-assemblage. It is a plan of the chapters/abstract machines.

When trying to visually represent Deleuze and Guattari's plateaus it is necessary to choose a metaphor wisely. They say, "We call a 'plateau' any multiplicity connected to other multiplicities by superficial underground stems in such a way as to form or extend a rhizome" (Deleuze and Guattari 1987:24). This is itself metaphorically descriptive

language. So why do I call the plateaus or ~~chapters~~ abstract machines? Livesey says this:

Assemblages, as conceived of by Deleuze and Guattari, are complex constellations of objects, bodies, expressions, qualities, and territories that come together for varying periods of time to ideally create new ways of **functioning**. Assemblages operate through desire as **abstract machines**, or arrangements, that are **productive** and have **function**; desire is the circulating energy that produces connections. An assemblage transpires as a set of forces coalesces together, the concept of assemblages applies to all structures, from the behaviour patterns of an individual, the organisation of institutions, an arrangement of spaces, to the functioning of ecologies.

Livesey in Parr (ed.) 2010: 18 (emphases added)

The term 'plateau' implies a geographical metaphor. By highlighting function in Livesey's quote, I emphasise the dynamic nature of assemblages. It is what the assemblages do which is important. They are what they are in virtue of what they do. Livesey goes on, "Assemblages emerge from the arranging of heterogeneous elements into a productive (or machinic) entity that can be diagrammed, at least temporarily "(ibid.). His point about temporality is very important and will be addressed again later. Conley says of the rhizome and of its temporality:

Unlike graphic arts, the rhizome makes a map and not a tracing of lines (that would belong to a representation of an object) [...] [It] moves at top speed to form lines, making alliances that form a temporary plateau. The rhizome is in a constant process of making active, but always temporary, selections.

In Parr (ed.) 2010: 237

Livesey emphasises the point concerning productive functioning:

Effectively, the diagram is the code or arrangement by which an assemblage operates, it is a map of the function of an assemblage; assemblages produce **affects** and **effects**. The machinic dimension underscores the objectivity, lack of specific location, and the primary role of being productive fundamental to assemblages.

In Parr (ed.) 2010: 18 (emphases added)

I have highlighted 'affects' and 'effects' in this quotation, because they are fundamental to a consideration of aesthetics, the notional subject of this dissertation-assemblage. Because the abstract machine diagrams these connections and functions, visually, every machine looks similar at whatever level of zoom one considers. Whilst Fig. 1 above shows

the pictorial form of this ~~dissertation~~-assemblage, diagrams of each of its component abstract machines, e.g., 'Cyborgs' or 'Vignettes' will look similar, but the sub-machines will have different labels. It matters not whether the abstract machine under consideration models an entity the size of the European Union or an amoeba, visually those diagrams will look the same. Paradoxically, when you have *seen* one rhizome, you have seen them all, although no ~~two~~ are the same.

This ~~dissertation~~-assemblage has the title: *Cyborg Music: A Future Musicotechnographic Aesthetic*. Its working abstract machine has been the question: will current and future developments in music's interface with an exponential expansion of technology lead to a new musical aesthetic? The indented text which follows outlines my rationale for ~~starting~~ the research five years ago. I indent it to put it in its historical context so that I might make some critical remarks about my approach to the research in the light of a rhizoanalytical approach to the research material developed during the interim.

There are a number of assumptions underlying the title and subtitle of this thesis which perhaps need a little in the way of explication and justification. I hope to show that all music is produced by *cyborgs*, that amalgam of human beings with technological tools which Andy Clark calls 'human-technology symbionts' (2003: 3). By *musicotechnographic* I mean no more than writing about aspects of the music produced by the human-technology symbionts. The term "*Aesthetic*" opens a can of worms and is the proper subject matter of the entire thesis. The fact that music is produced by cyborgs makes the case for an *interface* between music and technology. If all humans are cyborgs and music is only made by humans then all music is made by cyborgs. The question becomes one of determining to what extent the technological side of this symbiosis is critical to any aesthetic appreciation of those musics. I use the term *exponential* in the sense of an ever-increasing rate of growth.

The research question is important because it is already apparent that innovative musical practices, which exploit the altered interface between listener and artwork in new technological contexts, necessitate new social and cognitive modes. The paradigms of twentieth century musical production and distribution have been superseded by new technological methods of composition, production, recording, distribution and interaction, due in large part to the development of the internet and its associated and peripheral technologies. These issues will be further explored later in the text. The aesthetics of these practices, which are likely to become the common experience of near-future societies, remains almost entirely un-theorised. In offering a limited critique of existing ontologies this interdisciplinary research will address precisely this area, making it a timely project with wide relevance to artistic communities and practitioners. By drawing philosophical conclusions from

empirical ethnographic data, the research will address a significant gap in the current literature of contemporary and near-future musical aesthetics.

In short, then, how did I get from ~~there~~ to ~~here~~? In part, the research was undertaken in response to a sense of dissatisfaction with the explanations in the literature about music and music(-ma)king. Implicit in the text indented above are assumptions about the ontology of music and music(-ma)kers. The philosophy underpinning that text is fundamentally of the analytic tradition. It made assumptions that there are such things as music and cyborgs and technology. It is predicated on there being *an* aesthetic. It boldly states that there can be empirical ethnographic data. My subsequent rhizoanalysis calls all of these assumptions into question. Five years further on, this text, this ~~Fo~~remachine, is acting as an introduction (to me and to readers). Here is what Sellers says about this stage of the research-writing process:

I discover that this 'introduction' also becomes an after-wording exercise of concluding thoughts as I explain some of the processes negotiated. As I contest that thought~thinking is linearly ordered and exacted through sequential steps and stages – neither linear progress nor construct – to write an introduction that is as 'valid' at the ~~ending~~ as it was at the ~~beginning~~ is a concretising task. This ~~thesis~~-assemblage has resisted concretising all the way through, it has slipped and slid, continually tipping traditional thought and thinking off balance, creating an a-order and (dis)harmony of chaos and complexity. So now as I come to (re)organise my introduction, it wants to be nothing like it was at the commencement of my doctoral journey, or even in the middle. The introduction 'itself' has become a changing mass of ideas that can only be recorded as part of the ever-changing (ad)venture.

Sellers 2009:2

So, to repeat the question, how ~~should~~ this ~~dissertation~~-assemblage be read? The document looks like a linear text, but it is not. It is a relational text, a text of connections. It has evolved rhizomatically, almost organically. Each of the abstract machines ~~stands alone~~, albeit there are common threads and ideas which leach from one to another. Each of them has some ideas common to all the others. If it were a musicking text, one would find leitmotifs throughout, indeed, the ostensible subjects of each of the abstract machines *are* its leitmotifs. It has a sense of being through-composed, from the middle out. The

reader can see from the abstract machine maps the subject matter of desires. It is as if each abstract machine is a condensate of a slightly different hue.

I outline here the subject material of the other ~~chapters~~/abstract machines:

### *Literature Review.*

This ~~chapter~~/abstract machine discusses the two major stances taken by philosophers to a consideration of aesthetics, the analytical tradition and the continental tradition. But it does not spend too much time on the analytical tradition, opting to give some justification for adopting a continental (broadly Deleuzian) working of the material. Blake says:

Academic “normal” philosophy is much concerned with distinctions and determinations, classifications and demarcations, and rightly so. All thought is impregnated with theories and concepts, and we could not even get started if we were not already categorising and norming the world and its knowledge procedures.

Blake 2017

Blake’s assertion is well and good — as a starting point. But we must also account for the interstices and lacunae of this world; the uncategorisable, the un-normed, and the non-procedures, the matrices which underlie our thinking and observing. This is where Deleuze (with Guattari) and other concurring voices score over the “normal” analysts.

### *Methodology.*

Here I explain the rhizoanalytic approach which has been the basis of this research and the (thinking~)writing of the ~~dissertation~~-assemblage. I describe some of the Deleuzian imaginaries which underpin any rhizoanalytical approach to research. I raise the issue of the dangers of succumbing to ‘methodolatry’, where the method becomes more important than the process of enquiry itself (Commeyras et al., 1996). In a rhizo-methodological approach, it is impossible to distinguish the ‘data’ from the ‘method’ and the ‘analysis’. All combine (“commingle”, (Sellers 2013: loc 217)) in a constant de- and reterritorialising of the becoming-research and the ~~production~~ of the (becoming-)~~dissertation~~-assemblage.

### *Rhizo-aesthetics.*

This ~~chapter~~/abstract machine examines the way in which aesthetics manifest in the rhizome. I briefly consider the way aesthetics has developed in western European thought since the Enlightenment, and go on to explain why a broadly rhizomatic consideration provides a better explanation of aesthetics as 'first philosophy'. I consider Stiegler's and Whitehead's views of aesthetics from the point of view of its primary sense (*aisthesis*/*αἴσθησις*), the experiencing of embodied senses. This view of the aesthetic can be found as a leitmotif throughout this dissertation-assemblage.

### *Entangled Network Space.*

This is a description of the metaphysical ~~space~~ where assemblages (and potential assemblages) exist. It is a dynamic ~~space~~, wherein diachronic processes occur. Whitehead describes an ontology of processes rather than things. "[...] *how* an actual entity *becomes* constitutes *what* that actual entity *is* [...]" Its 'being' is constituted by its 'becoming'" (quoted in Shaviro 2014:2). To Vitale's thought experiment's list, whose goal "is to see if everything in the world, from matter to markets, organisms to molecules, brains to societies, languages to love, can be seen as composed of networks of networks" (Vitale 2014: loc 232), I would add, musical ~~objects~~, musickers, and technology.

The discussion of the ontological nature of entities raises the question of the boundary conditions of those entities. So I consider what Hodder (2012) and Derrida (1979) have to say about this. Hodder says, "How is the entity defined in the first place? If things are always connected, then how can we discern what the underlying entities are — where do we draw the boundaries that identify an entity as contained?" (Hodder 2012: 10).

This is important, because a 'normal' (to use Blake's term, op.cit.) view of aesthetic appreciation relies upon an appreciator and an object of appreciation. Fuzzy boundaries make this problematic.

### *Cyborgs.*

This abstract machine interpolates material from the vignettes into a discussion about human-technology symbiosis, concluding that such assemblages are, *inter alia*, technosocial musicking linguistic imagining cyborgs.

#### *Vignettes.*

This abstract-machine takes the words and practices of four contemporary musicians as a rich data source for rhizoanalysis. I reproduce their responses to a questionnaire about their music(-ma)king. There are also bibliographic links to much online material concerning them and their work. I use aspects of this material in all of the other abstract-machines to make exemplary points germane to the rhizoanalysis of the various philosophical questions.

#### *Future(s) un poco accelerando.*

This chapter/abstract machine takes, as a starting point, current technomusical interfaces. It includes rhizoanalytical comments on the practices of the vignettes' participants. It surveys some recent trends in technomusical development and speculates (based on trends) what might happen to musicking in the next few years. It considers Kurzweil's (2005) claim that a technological singularity is imminent and what that might mean for future musicking cyborgs. Following Barrett (2016) it queries whether audibilia are a necessary condition for music at all.

#### *Aftermachine.*

An attempt to draw together some of the leitmotifs which have run throughout this dissertation-assemblage, to give some thoughts on (not necessarily answers to) the dissertation-assemblage's working question: will current and future developments in music's interface with an exponential expansion of technology lead to a new musical aesthetic?

#### *Intermezzi.*

Several of these are interpolated as pictorial chapter-breaks within the ~~dissertation-~~ assemblage. Each illustrates (a) particular point(s) from the discussion in the main body of the text. The very short ~~chapter/~~abstract machine gives a textual overview of the pictures.

*Bibliography.*

This is, perhaps, the most useful abstract machine of all. All lines of flight converge and diverge from here. If the ~~dissertation-~~assemblage rhizome has a metaphysical middle, *milieu*, it is surely here.

Follow the lines of flight as they appear. And they do appear. As Edmund Wilson said, “In a sense, one can never read the book that the author originally wrote, and one can never read the same book twice” (Wilson 2018). So read this ~~dissertation-~~assemblage in the ~~order~~ in which it appears, if you wish, but that ~~order~~ is, in a sense, arbitrary.



## Intermezzo I



For description see pp. 229-233



—————> and... and... and... you arrive here on a line of flight...

## **Literature (rhizo-)Review**

A Google search on the word 'aesthetic' returns about 71 million results (as at 13 March 2018). Narrowing the field a bit, a search of the *Stanford Encyclopedia of Philosophy* returns 264 documents related to 'aesthetics' (as at 13 March 2018). The topic is too general for there to be a meaningful review of the literature such as might be found in a tightly focused, conventional and linear dissertation topic. Instead, I briefly survey the two great sweeps of writing on aesthetics in western philosophy and musicology, namely the analytic and continental traditions. The relevance of my rhizo-reading and becoming-research is situated throughout the pages of this ~~dissertation~~-assemblage as a worldslice or rhizo-cut through the literature. The bibliography chapter/abstract machine provides a better record of rhizo-relevant literature than any surface-skimming review under this heading could achieve.

But, if there are two pieces of writing that have had a disproportionate influence on the construction of this ~~dissertation~~-assemblage they are *The Aesthetics of Music* (Scruton 1997) and *Musicking: the Meanings of Performing and Listening* (Small 1998). Influential insofar as they look at music(king) from almost diametrically opposed frames of reference. Scruton's approach is to take a broadly reductionist approach to the topic, his writing firmly anchored in the thinking of the Anglo-American analytic philosophical tradition. We can take it from him that he does so situate himself. Regarding musical aesthetics, he says:

This interest has been especially marked among those who practise what is known, for want of a better word, as 'analytical' philosophy, by which is meant the painstaking process of arguing about fundamental questions, without the benefit of any prearranged or systematic answer to them. Prominent among current writers in the field are Jerrold Levinson, Peter Kivy, Malcolm Budd, Stephen Davies, Michael Tanner, Nicholas Wolterstorff, Kendall Walton, and Diana Raffman, whose names I mention here by way of acknowledging their influence on my thinking [...].

Scruton 1997: viii

Small describes musicking in terms of its place in the social realm. His is an anti-reductionism, a philosophy of construction:

The act of musicking establishes in the place where it is happening a set of relationships, and it is in those relationships that the meaning of the act lies. They are to be found not only between those organised sounds which are conventionally thought of as being the stuff of musical meaning<sup>4</sup> but also between the people who are taking part, in whatever capacity, in the performance; and they model or stand as metaphor for, ideal relationships between person and person, between individual and society, between humanity and the natural world [...].

Small 1998: 13

It would be fair to say that the vast majority of writing in the area of what may be termed musical aesthetics (in English, at any rate) situates itself within the ambit of the analytical tradition. That analytic literature is vast. In this abstract machine it would not be possible to do justice to a meaningful critique of the field. By way of de- and reterritorialising my thinking about the literature, I shall give some examples of writing from both 'sides' of the debate and explain why the Smallian stance of connection over reduction is the appropriate philosophical underpinning for the material in this ~~dissertation~~-assemblage.

The physicist, David Deutsch tells us:

If we are simply curious about something, it means that we believe our existing ideas do not adequately capture or explain it. So, we have some *criterion* that our best existing explanation fails to meet. The criterion and the existing explanation are conflicting ideas. I shall call a situation in which we experience conflicting ideas a *problem*. [...] *Solving* a problem means creating an explanation that does not have the conflict.

Deutsch 2012: 17

Christopher Norris says this about his own book on musical ontology:

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<sup>4</sup> The Scrutonian stance.

[...] This is partly a book about the relationship between philosophy and music, and partly [...] a book about one listener's efforts to get some order into his philosophic thinking about issues in musical aesthetics, criticism and theory.

Norris 2006: 2

The aims of this ~~dissertation~~-assemblage are the same. As the thoughts of Scruton, Small, and others de- and reterritorialise throughout this ~~dissertation~~-assemblage, my rhizoanalysis and rhizoconstruction will discuss why the Scrutonian analytical approach neither brings order nor solves the problem of music(king) and why the Smallian approach does, or, at least, begins to.

The philosophical study of what things *are* is called ontology. There are two major strands of philosophical enquiry in western thought; an analytical (broadly Anglophone) tradition and a continental (mainly Franco/Germanophone) tradition. The analytic approach takes a reductionist, sometimes Platonist stance in identifying musical works as having some transcendent existence independent from their particular production and reception histories (see, e.g., Hanslick 1854, Scruton 1997). The continental tradition charts the development of aesthetics through a lineage from, *inter alia*, Hegel, Marx, Nietzsche, Heidegger and Adorno, to Barthes, Derrida, Deleuze and Guattari, leading, ultimately, to the late twentieth-century position which eschewed the notion of an ontologically based aesthetic in favour of a description of an epistemological state of affairs.

These two great philosophical sweeps are important, because writers in each of them have sometimes very divergent viewpoints on what constitutes proper aesthetic consideration. Paul Crowther avers that neither of these two 'traditions' gives sufficient credence to the subject of aesthetics at all. He says, "[...] the Anglo-American tradition in philosophy is regarded, where it is noticed at all, as too passive, distanced and traditional to be relevant to either art practice or art engagement" (Crowther 2012: 1). The Continental tradition, he says, "[...] also suffers from the problem that in most cases, the

explanation of art is derived from the relevant thinkers' own general philosophy rather than from close investigative engagement with the work of art itself" (ibid.: 2).

There is a literature which occupies a middle-ground between these two polar extremes. For example Goehr (2007) identifies the musical work as the object of "normative and regulative" practices, taking a historicist approach to its status by drawing ontological conclusions from the epistemology of musical practice. Norris (2006) argues for the *relative* autonomy of musical works, but allows for consideration of the phenomenology of musical experience, what he calls the "listener's share". These are issues related to the question I posed above; issues as to whether aesthetics should be concerned solely with matters intrinsic to the musical work or object or whether music's cultural, social and historical standing are proper matters for aesthetical consideration too.

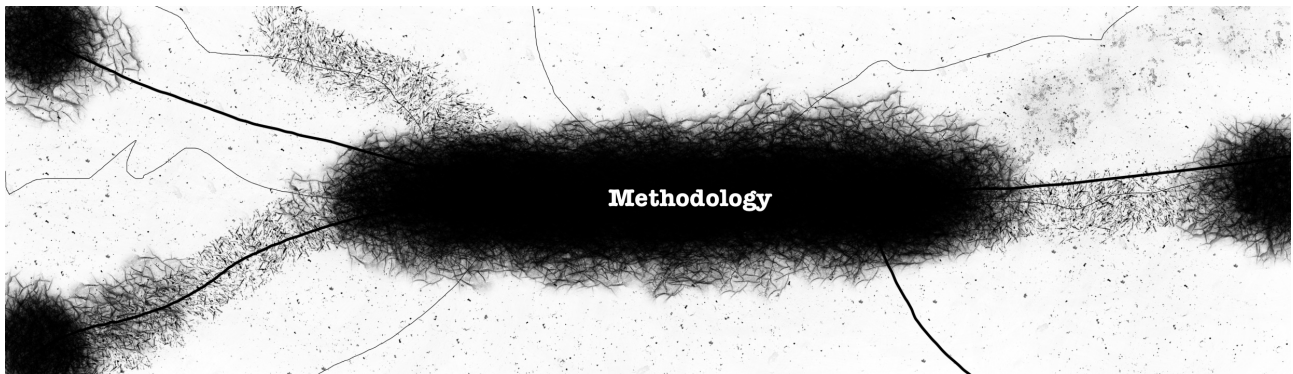
These questions are important, because, as I describe in the other chapters/abstract machines, writers have very divergent views about them. Scruton argues that intrinsic aspects of the musical object are paramount in any aesthetic experience of it, external matters, such as associations and emotional responses having no part in it (Scruton 1997). Small claims that the issues which are eschewed by Scruton are the prime matters for proper aesthetical appreciation (Small 1998).



## Intermezzo II



For description see pp. 229-233



—————> and... and... and... you arrive here on a line of flight...

## Methodology

I thought that I knew about methodology. An earlier me studied science at university and worked as an analytical chemist. Surely, a methodology was simply an enumeration of the methods to be used in the conduct of an experiment or analysis. The OED says of it, “[...] the study of the direction and implications of empirical research, or of the suitability of the techniques employed in it; (more generally) a method or body of methods used in a particular field of study or activity” (OED online). Cryer says that, in general terms:

[A] ‘research methodology’ is a rationale for the methods used to gather and process data. A research methodology is not a grand term for a list of methods, but an informed and properly argued case for designing a piece of research in a particular way.

Cryer 2011: 70-71

So, then, it would seem to be more than just a list of methods; rather a meta-justification, a rationale for the use of those methods. In applying to undertake this research, and in seeking the funding which made it possible, my documentation certainly included details of, what were then, proposed methods and, arguably, a rationale or justification for proposing them. Indeed, within the confines of the university’s guidelines for research applications, the proposal would not have gained traction or support, let alone funding, were those elements not present. In short, then, there was a plan and an outline of reasons for it. But, to paraphrase von Moltke (2018), no plan survives contact with the enemy. In a previous employment I was trained in project management techniques, and

applied them to the management of a number of complex projects and investigations. I produced a timeline plan of this research project, including Gantt charts, and tried to identify a critical path through the required work. There have been some critical nodal points, but, in reality, they have been few. One such was the requirement to obtain ethics committee approval before approaching the “human subjects” of the ethnographic enquiry. Another would be the need to have actually obtained the ethnographic research data before being able to undertake any (rhizo)analyses of them. There are simply some carts which will not go before horses. But, those critical points notwithstanding, my Gantt charts have turned out to be (mostly) nonsense. Certainly, most of the tasks in those charts have been accomplished. But some of those tasks have turned out not to be quite as discrete as first appearances would imply. They have all had fuzzy borders, not least, in terms of their temporal duration. In short, it has not been the case that their scope, nor their start and end points have coincided with the neat cartesian geometry of a Gantt chart. In reality, pretty much all of the things described in the initial project plan, and their corollaries, have all been going on alongside one another all of the time.

Here is a line of flight:

Oh, what have I done,  
Why have I done it?  
I've committed a crime,  
I've broken the law.<sup>5</sup>

These words seem to be the perfect allegory for this methodology chapter/abstract machine. Obviously not a literal crime, but perhaps an offence against the established norms of academic research writing in the humanities. This dissertation-assemblage has happened in the playful spirit of what Honan and Bright describe as an attempt:

[t]o disrupt the practices of language, text and method that are constructed within normative accounts of doctoral thesis writing, and to move beyond the strictures of the “scientific method” while at the same time writing about and within the post-qualitative turn (Lather & St. Pierre, 2013). Our aim is not

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<sup>5</sup> From *Wednesday Morning, 3 am* by Paul Simon, 1964



to reject academic writing but to interfere with normativities of practice that have come to sanction what is recognizable as academic writing and examinable as thesis text.

Honan and Bright 2016: 731-732

Those norms are criticised by Honan and Bright and by St. Pierre:

St. Pierre (2011) asserts that the centre of methodology has failed in the wake of the deconstructive critique of concepts and categories such as the interview, validity, data, voice and reflexivity. Notions of “knowledge, truth, reality, reason, science, progress, the subject” (St. Pierre & Pillow, 2000, p. 1) have been subjected to the play of *différance*, disrupting many of our most deeply entrenched ontological and epistemological assumptions, and demanding radical consequences.

And yet, despite this ongoing and inevitable critique, the concepts have tightened and reified, standing firm in the face of this deconstructive assault, resulting in an orthodoxy of qualitative research that is “so disciplined, so normalized, so centered ... that *it has become conventional*, reductionist, hegemonic, and sometimes oppressive and has lost its radical possibilities” (St. Pierre, 2011, p. 613). This orthodoxy produces and is a product of the “thousands of textbooks, handbooks, and journal articles that have secured *qualitative methodology* by repeating the structure in book after book with the same chapter headings so that we now believe it is true and real” (St. Pierre, 2011, p. 613).

Ibid.: 732

I read some of those “thousands of textbooks”,<sup>6</sup> and the reductionist, hegemonic templates that they describe in pursuit of a qualitative methodology were troubling to me. The way I was thinking about my research question and the work I was doing in pursuit of it simply did not seem to fit with a standardised methodology. It was no wonder that my plans and Gantt charts were not mirroring my rhizoanalytical approach to the project. In fact, the whole project seemed to be subject to a series of (semi-)random de- and reterritorialisations. The arbitrary start date(s), i.e., the cut-off dates for university application, funding, and registration, then the arbitrary end dates(s), i.e., thesis submission, last permitted submission date, and *viva voce*, all of these seemed to be points in a *milieu* which extended far back into my life, and, hopefully, far into the future.

Some of these de- and reterritorialisations can be documented. For example, I had read no Stiegler, Marion, or Laruelle until after I heard a paper by Ian James at a conference in Dundee in 2015. And hearing that paper was an act of chance, since there

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<sup>6</sup> E.g., Cryer 2006 (and see Bibliography abstract machine).

were three or four other parallel sessions which I might have attended. Perhaps other lines of flight would have led me to those writers via a different terrain. It is not possible to say. That is just one example of the way serendipity plays out in the course of a project (or a lifetime). Other lines of flight cannot be documented. For (a non-)example, consider my ~~method~~ of reading. I do not often read a book-length text from cover to cover, to the exclusion of other texts. My study always has a pile of books which are (at varying speeds) on the go. I am not a note-taker in the conventional sense. I am, however, an inveterate highlighter of texts and maker of copious marginal notes. This ~~technique~~ applies to hard paper copies or electronic texts on Kindle or stored on other devices such as PDFs or in other formats. During this project I have used the program Evernote a great deal. It is very useful for storing clippings from, or complete web-pages, or other online information, including links to text, pictures and sound files. I began by creating sub-folders within Evernote, with headings such as 'Computer Music' and 'Conferences and Symposia', but it soon became apparent that such arboreal categorisation was unnecessary because of the ability to search within the program for any word or topic, just like the internet more generally. It is perhaps a little ironic that the algorithms which the coders of these storage and retrieval programs have produced have resulted in a completely rhizomatic environment.

This research project has not been linear, one of research *per se*, but rather, one of, what Honan and Bright call, “‘becoming-research,’ that is process not product, movement not stoppage” (Honan and Bright 2016: 738). This becoming process can be described thus:

Research processes can be felt in their effects and can be actualized through movement from one sample to another, through in- and out-foldings of texts and interpretations, methodological parts folding on each other, redoubling and reductions, and examples of methodological pasts projecting ahead to the future. (Koro-Ljungberg, 2012, p. 813)

Ibid.

In short, the interconnected and fluid nature of thinking, reading, writing, collating, and myriad other activities which constitute the becoming-research(er) are all coincident. It is, therefore, no surprise that a project plan or chart bears but a loose relationship to the process. As Honan and Bright say of Sellers's work:

This non-linear mapping of plateaus could not occur using the typical thesis structure promulgated in the thesis writing books, journal articles, blogs and websites. As Marg writes, rather than adapting her thinking and writing to the structure, thinking and writing generated a "milieu of plateaus" in which "literature review," "methodology" and "analysis" occur throughout while simultaneously disrupting the vehicular notions of logic and linearity and pushing beyond the boundary of the traditional thesis structure.

Ibid.: 739

It is always necessary to avoid "'methodolatry,' where the method becomes more important than the process of the enquiry itself" (Commeyras et al., 1996, quoted in Honan 2001: 20).

I shall outline in the Vignettes chapter/abstract machine the processes which led to the ethnographic part of the becoming-research, but, for the most part, the methodology is integral to the chapters/abstract machines which constitute this assemblage-dissertation. It is within those abstract machines that the methodology reveals itself. Whether all of this constitutes "an informed and properly argued case for designing a piece of research in a particular way" (Cryer 2011: 70-71), is for others to judge. Certainly this is the way it happened.

An academic of my acquaintance once said in a forum for prospective postgraduate research students that it was important not to see a PhD dissertation as one's *magnum opus* or life's work. The implication of that remark is that a PhD stands alone as a discrete ontological entity, with a discrete epistemological aim, to act as a passport to the academy. Certainly, that is the traditional view of the academy. The PhD process being seen as a metaphorical journey across the desert of research towards the oasis of the academy.<sup>7</sup> It is

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<sup>7</sup> See Gale, Speedy and Wyatt 2010

my view that such temporal and structural bounds are impossible to define. This dissertation-assemblage is part of the rhizome of my life, and, to a lesser extent, of the rhizomes of those who read it. In writing a rhizome it is impossible to exclude aspects of the writer in the text:

A poststructural approach to writing...challenges the status quo of research products. This happens textually by juxtaposing a range of genres, by addressing decentred reading audiences within the text, by layering meanings and by the occasional personal inclusion in the research of the writer's voice and body (Rhedding-Jones, 1996, p. 29).

Quoted in Honan 2001: 29

Honan goes on to quote Davies:

In this book you will find intensities, resonances, and harmonies as I explore, sometimes with others, sometimes alone, the possible music that I can play with poststructuralist theories as I work with them to unfold the insights they can bring to human life (2000, p. 10).

Quoted in *ibid.*: 30

I have found throughout the time that I have (always already) been working on this PhD project that the writing has (always already) been undertaken in parallel(s) with the research process. As Honan says, "The search and the exploration through the process of writing itself is as much part of the research as the collection of data or the transcription of tapes" (Honan 2001: 30). And with regard to the inclusion (how could it be otherwise?) of aspects of my own embodied self within the text(s), I rely upon Davies again:

The detail of the texts of life as I have lived it as an embodied being provide an immediate and vivid resource for examining the constitutive power of discourse both as I find myself constituted and as I, in turn, constitute the world in my reading and writing of it (2000, p. 10).

Quoted in *ibid.*: 30

"The inclusion of my embodied self in this piece of writing is an attempt to make visible the ways in which the discourses that I write about constitute me as a subject" (*ibid.*: 31). If that was not the case, the reader would be left wondering who (or, perhaps, what) wrote this work.

The main method utilised in the construction of this ~~text~~ is that of rhizoanalysis. The whole process has been a rhizoinquiry, utilising rhizomatic methodology. Sellers says:

[...] The thesis-assemblage becomes a milieu of plateaus that can be read in any order, rather than a conventional linear sequence of chapters containing specific sections of the research process. Continuing with generating a milieu (while simultaneously disrupting linearity) both the literature review and rhizoanalysis occur in various plateaus, and the rhizo-methodology is played out throughout.

Sellers 2009: v

I include this long quotation from Sellers, because she raises many of the issues that I have had to address in attempting my own rhizoanalysis of the material in this ~~dissertation-~~assemblage:

*opening rhizoanalysis*

As discussed in different ways throughout various plateaus, everything is always already happening. Opening is thus *sous rature* as opening to/the rhizoanalysis is already happening in the writing of other plateaus. With/in a poststructuralist approach, the writing of the research becomes part of the inquiry in that there is no difference between what the thesis-assemblage talks about and how it is made. 'The analysis' is thus not a constant thing relegated to a place of its own in this doctoral dissertation. Rather, the rhizoanalysis as 'some of rhizome' (Deleuze & Guattari, 1987, p. 9) of this thesis-assemblage happens throughout...*and*...I am uncertain that I could have written about rhizoanalysis before (my attempt at) making it work, before doing it. With/in/through processes of thinking rhizome in flux, working rhizome (im)provis(at)ionally, becoming rhizome as becoming-researcher, I am continuously experimenting with, and exploring my own thinking, thus becoming some of the rhizome I am attempting to generate and map (Tamboukou, 2004). So that even in writing the previous sentence, I come to understand working (with) rhizome as thinking~working becoming-rhizome with/in an understanding of processing as thinking~doing~rhizome. Rhizoanalysis (dis)continuously (e)merges with/in/through every dimension of my thinking as becoming-researcher; ebbing and flowing with/in/through matters of always already becoming. In the same way that writing (about) methodology was already affected by a growing understanding of how I saw (the) methodology working throughout, writing (about) rhizoanalysis is now affected by my writing (the) methodology and doing (the) rhizoanalysis.

Ibid.: 201

To think about the becoming-research in these ways has not been easy. Always there is a tendency to return to linearity and arboreal, hierarchical ways of thinking, seeing, and analysing; the "ruthlessly linear nature of the narrative of knowledge production in research methodology" (St.Pierre 1997: 179). Troubling me ~~throughout~~ the whole of this research-writing ~~process~~ has been Wittgenstein's injunction to clarity: "[...] what can be said at all

can be said clearly [...]” (Wittgenstein 1974: 3). How can ‘clarity’ be achieved in the entanglements of the rhizome? As Sellers says:

Perhaps I want my readers to get lost in middles of folds of ideas and my writing~thinking, that they may find their own way. My quest throughout this *Rhizoanalysis* plateau and the thesis-assemblage is to find ways of ‘living with and knowing confusion’ (Law, 2003, p. 4) destabilising the tendency of pervasive linear approaches to research processes that deny the possibility of mess.

Sellers 2009: 203

Regarding that messiness, she quotes Law:

In practice, research...needs to be messy and heterogeneous, because that’s the way it...actually is. And also, more importantly, it needs to be messy because that’s the way the largest part of the world is. Messy, unknowable in a regular and routinised way. Unknowable, therefore, in ways that are definite and coherent...Clarity doesn’t help. Disciplined lack of clarity, that may be what we need. (Law, 2003, p. 3)

Sellers 2009: 203

Certainly, it would be relatively easy to treat the research material (vignettes’ textual responses, web data, primary and secondary texts) as material to be codified, compared, digested, and (re)presented as a conventional linear text. But such an approach freezes matters and does not allow for the reflexivity of the relationship between the material itself, me as the ~~author~~, and the reader to emerge. Such a frozen text runs the risk of what Lather calls “subsuming [readers] within interpretive and textual moves” (Lather 2007: 146, quoted in *ibid.*).

But in the rhizome, there are no sharp distinctions between the data and the analysis. The boundaries are fuzzy and always moving. There is a danger of consuming one’s tail, Ouroboros-like, so it is necessary to be engaged in a rhizoanalysis which allows “blurring boundaries without burning bridges” (Tamboukou 2004: 17, quoted in *ibid.*: 202). Most of ~~my data~~ was obtained as text.<sup>8</sup> Of my textual data, like Sellers, who says, “[...] I had no need of coding, sorting, categorising and no desire to ‘produce knowledge based on these categories, which... are simply words’” (St.Pierre 1997b, p.179, quoted in *ibid.*: 204), I too have refrained from classificatory analysis. Certainly, some of my participants describe

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<sup>8</sup> There is a very small amount of transcription from, e.g., a podcast (see the Vignettes abstract machine).

sorted and classified entities in their responses; but I leave them to speak for themselves, not subsuming the reader in my 'interpretive and textual moves'.<sup>9</sup> To try to disentangle elements from one another is to try to defeat the rhizome. The writer-reader assemblage in rhizotexts is temporarily made up of two people who meet at an internal junction point of a maze. They then deterritorialise and go down different paths. But they may meet again.

Masny says of rhizoanalysis:

For Deleuze and Guattari (1994), concepts are constantly created through deterritorialization and in this context methodology is no exception. Methodology is deterritorialized and reterritorialized: rhizoanalysis.

Masny 2013: 340

The constant de- and reterritorialising of the becoming-research has involved a concomitant questioning of the research material and the questions surrounding it.

Regarding rhizoanalysis, Sellers says this:

Nothing is separate or linear in the thinking or writing up~down of the thesis-assemblage. There is an ongoing intermingling of data, methodology and analysis with theorising the literature and practicing the theory. In various space-times, any of these or any relationship among these may be foregrounded, albeit momentarily as light and shadow pass through, like shadows of clouds on a sunny, windy day. Each becomes (an)other.

Sellers 2009: 201

Regarding the rhizoanalysis of data, Masny quotes St Pierre:

"Data is not read in the traditional way as evidence, but rather as nonrepresentational, transgressive" (St Pierre, 1997, p. 174). Rhizoanalysis is a way to work with transgressive data (" . . . emotional data, dream data, sensual data, and response data that are out-of-category and not usually accounted for in qualitative research methodology" St Pierre, 1997, p. 175). Based on the concept of the rhizome, a bloc of data has no beginning, no ending. A researcher enters in the middle.

Masny 2013: 341

And, helpfully:

Moreover, rhizoanalysis eschews interpretation. To seek interpretation would be asking what something means. This is a foundationalist and transcendent form of meaning that is there to be interpreted. Rhizoanalysis operates within transcendental empiricism in which sense expresses not what a text means or is, but rather its virtual potential to become.

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<sup>9</sup> But see the rhizo-analysis in the Vignettes chapter/abstract machine.

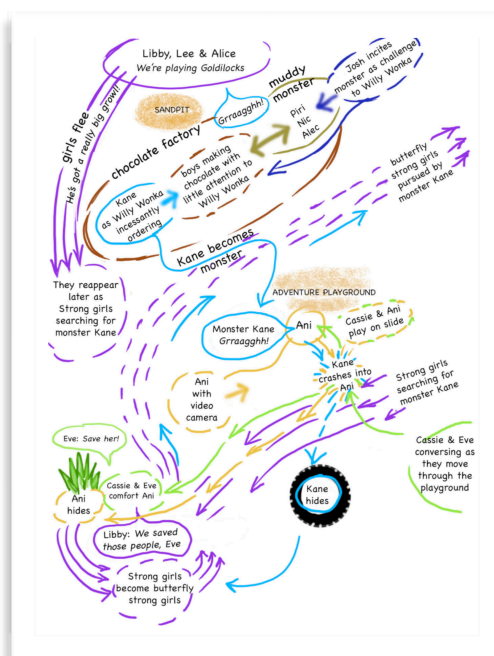
Masny quotes Waterhouse (2011):

Rhizoanalysis in [...] research becomes:

a move towards a place where research is not *judged* in relation to an external set of criteria, rather research is *assessed* immanently according to its creative, affective powers. What does research produce? What hitherto unthought-of lines of flight does it open? What does it make possible to think? (Waterhouse, 2011, p. 142).

Ibid.: 346

If the vignettes materials are not to be subjected to my 'interpretive and textual moves', then how is the material to be rendered in the pages of this dissertation-assemblage? I have used what I have termed rhizo-diagrams; static drawings that map or graph relationships between (often) non-similar entities. The stasis of the ("unavoidably paginat[ed]") (Sellers 2009: 206') printed page is a real issue. Short of the invention of a dynamic, diachronic visual representation of diagrams (think animation, GIF) there is no solution beyond using further text to explicate. Sellers had a similar issue in presenting dynamic processes as static diagrams.



**Fig.2 Dynamic processes represented in a static map (Sellers 2009: 207)**

She says, of this map (Fig. 2), which deals with data gathered during the filming of children's play activities:



I am still wondering how I could have explained the map in a meaningful way. For the moment, I'm thinking I couldn't have. The map is a picturing of coloured lines and words that speaks for itself. Any attempt at 'wording' it confounded the communication.

Ibid.: 206-207

Perhaps it was the inevitable nature of a broadly philosophical research project that it would entail a large amount of 'armchair philosophy'. That has certainly been true. But that philosophising has included, too, much internal debate. These are the 'relationships' mentioned by Sellers. Researching and writing rhizomatically is a messy process, which, of its nature, leaves loose ends (and beginnings). It requires a "living with and knowing confusion" (Law 2003: 4). Openings and closings are problematic:

With any sense of closure unlikely, many possible interpretations for/with/in rhizoanalysis become more and less im/plausible and the multiplicity of reader~writer~thinker~text becomes ever complex as reader and writer, both thinking and following lines of flight, their own and the other's, within the silent conversation of (re)reading and (re)writing the text.

Sellers 2009: 204-205

It is, perhaps, the nature of these diagrammatic representations that they are (*pace* Law 2003) messy. This diagram is Sellers's 'messy' map of another possible rhizo-imaginary (Sellers 2009: 209).

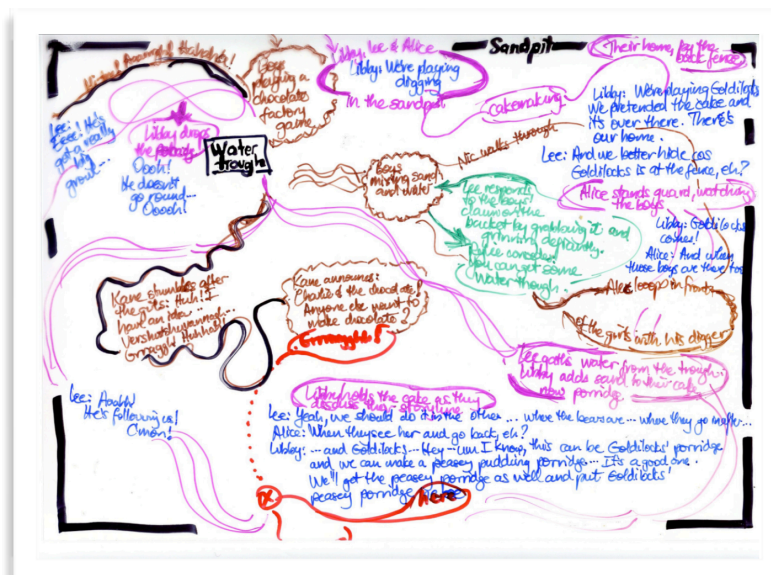


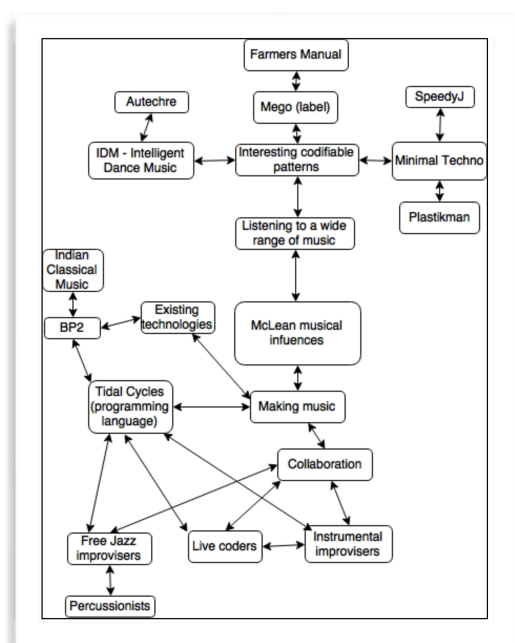
Fig. 3 Sellers — messy map of a possible rhizo-imaginary (Sellers 2009: 209)

She says of the diagram (Fig. 3):

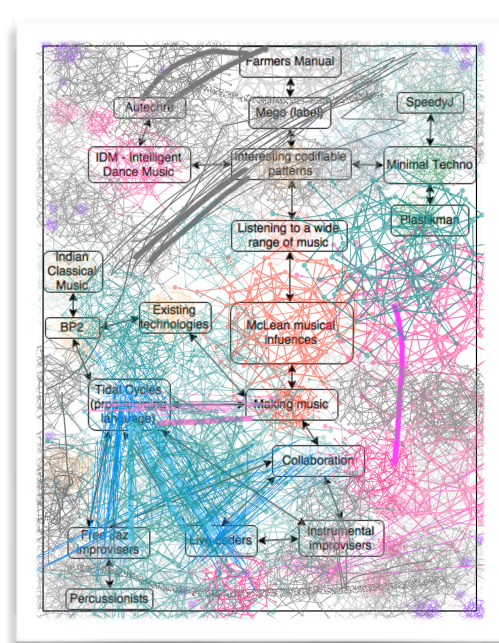
I then map the two games as they processed through the four minutes. This disrupts the linearity – makes a mess with method (Law, 2003) – and I can see what is happening (by following the colours of text and lines) and because it is all very familiar, but the page is overloaded with information and the mess, even for me, is overbearing to the extent that I am not sure that reworking it digitally would make it any easier to read (Figure 16) [My Fig. 3, above]. Although, digitally (re)worked it may have emerged as a pictured understanding, not reliant on words and dismissing the need for them. But intent on using words to explain my thinking, I continue, aware that I am limiting possibilities for thinking otherwise in this moment; that I am limiting the data.

Ibid.: 208

And so, by taking/making a snapshot of any data, it seems that there must inevitably be a compromise between letting the messiness, counter-productively, overwhelm the viewer/reader and presenting the data in a clarified manner. This is why, in the Rhizo-aesthetics and Vignettes chapters/abstract machines I produce a diagram that looks like the one on the left (Fig. 4), whilst reminding us that it really looks like the one on the right (Fig. 5).



**Fig. 4 McLean — Musical Influences (schematic rhizo-connections)**



**Fig. 5 McLean — Musical Influences (fractal rhizo-connections)**

This way of researching/rhizoanalysing requires a nomadic approach. It is a path of constant de- and reterritorialisation, where “[i]t is in this sense that nomads have no points, paths, or land” (Deleuze and Guattari 1987: 381). As Sellers says, “In this smooth space of nomad~rhizome, there are no points or positions, only lines, and working with these lines,

as de~territorialising lines of flight, opens (to) possibilities for connecting what otherwise may be regarded as disparate thoughts, ideas and activity” (Sellers 2009: 217).

As Dennett puts it:

Talking to yourself, asking yourself questions, or even just the inner rehearsal of relevant words (“key words”), is an efficient way of probing the networks of associations attached to each word, reminding you of overlooked possibilities that are likely to be relevant to your current perplexity.

Dennett 2017: 297-298

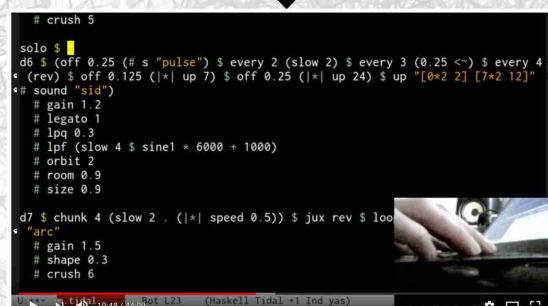
I didn’t really have Dennett marked down as a Deleuzian, but there you are.

If there has been a meta-justification for this approach, it has been the way the rhizome grows in/as part of the chaoplex of the research process. And it keeps growing, by processes of and... and... and..., and but not... but not... but not.



# Intermezzo III

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1 0 1 0 0 0 0 1 1 1
0 1 0 0 1 0 0 1 1 0
0 1 0 1 1 1 0 0 0 1
0 0 1 0 0 0 1 1 1 1
0 1 1 0 1 1 0 0 1 0
1 0 1 0 0 1 0 1 0 1
1 0 1 1 1 1 0 1 1 1
0 0 0 0 0 1 0 0 1 1
0 0 0 1 0 0 1 1 0 0
0 1 0 0 1 1 1 0 1 0
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Algorave Montreal - Yaxu streaming from Sheffield

For description see pp. 229-233



→ and... and... and... you arrive here on a line of flight...

## Rhizo-aesthetics

Words can be tricky. The word ‘aesthetic’ (and its plural and common cognates) occurs in Band 6 of the Oxford English Dictionary’s usage scale for modern English.<sup>10</sup> That means that it occurs between 10 and 100 times per million words in typical modern English usage. This is surprisingly common for what might be thought of as a technical word. I used the word (without qualification or explanation) in the questionnaires I sent to the vignette participants. Each of them responded to this question, “**Aesthetics** - Please say what you consider to be the important aesthetic aspects of your music. How do you decide what they are to be and how do you achieve them?” in a way which would suggest familiarity with the term.<sup>11</sup> The OED says that ‘aesthetic’ is “A borrowing from Greek; modelled on a German lexical item. **Etymon:** Greek *αἰσθητικός*” (OED online). That etymology is ultimately from “ancient Greek *αἰσθητικός* of or relating to sense perception, sensitive, perceptive” (ibid.).

This etymology notwithstanding, ‘aesthetic’ started to take on a particular meaning during the eighteenth century, with the emergence of the Enlightenment view of treating objects (including music) as artworks, to be considered for themselves. It was a time “when the philosophy of art became conscious of itself” (Scruton 2009a: 22). This process

<sup>10</sup> <http://www.oed.com.libezproxy.open.ac.uk/view/Entry/3237?redirectedFrom=aesthetic#eid> and <http://public.oed.com/how-to-use-the-oed/key-to-frequency/>

<sup>11</sup> See the Vignettes chapter/abstract machine.

consolidated itself when, “in the course of the nineteenth century, and in the wake of Hegel’s posthumously published lectures on aesthetics, did the topic of art come to replace that of natural beauty as the core subject-matter of aesthetics” (ibid.: 97).

Regarding a musical parallel, Kramer points out that, “In its modern form, the problem of meaning arose with the development of European music as something to be listened to ‘for itself’ as art or entertainment” (Kramer 2001: 1). That development, Goehr dates to about 1800, a time when the concept of musical works and the notion of a canon began to emerge (Goehr 2007 *passim*). Shelley tells us that, “the term ‘aesthetic’ has come to be used to designate, among other things, a kind of object, a kind of judgment, a kind of attitude, a kind of experience, and a kind of value” (Shelley 2017).

One problem of this approach has become clear from a consideration of the issues discussed in the other chapters/abstract machines of this dissertation-assemblage. That is, the issue in assemblage and networkological space (Entangled Network Space) of reliably being able to identify objects and persons. So, *pace* Shelley’s remarks above, how can the term ‘aesthetic’ be a reliable modifier or predicate to such indeterminate (and indeterminable) subjects? Goehr is aware of these problems which stem from an analytic, reductionist approach:

In the analytic tradition, under the manifold influence of the Enlightenment, Frege and the Logical Positivists, the search for definitions has approximated as closely as possible to a scientific procedure, where the latter has been conceived in an anti-pragmatic manner. The dominant model of analysis for all areas of philosophy - ethics, aesthetics, and science - has come to be characterized as one governed by ‘positivistic’ standards of objectivity and logic.

With the predominance of science, aesthetics has tended to stand on the borders of disrepute.

Goehr 2007: 71

Sutton and Martin-Jones say, “[...] We should not always reduce things to ‘one thing and its Others’, one true way of thinking and its competitors, but, rather, consider that every thing always contains many truths” (Sutton and Martin-Jones 2008: 4-5). In a world of entanglement and assemblages, where the boundaries between subjects and predicates

are blurry or non-existent, a different kind of consideration of aesthetics is required; an aesthetics which owes more to its Greek roots than to modern analytical reductionism; a rhizo-aesthetics. This approach is necessary if we are content with the Whiteheadian (and Deleuzian) description of things manifesting themselves in the world through the processual action of encountering.

For Shaviro, beauty and the aesthetic is manifested in an encounter. It is a process rather than something predicated of objects. He says, “Beauty is therefore an *event*, a process, rather than a condition or state.<sup>12</sup> The flower is not beautiful in itself; rather, beauty *happens* when I *encounter* the flower” (Shaviro 2009: 4). On the face of it, this description is still dependent on the Kantian notion of the relationship between a conscious experiencer and the object of appreciation (Shaviro’s ‘I’ and ‘the flower’). Whitehead claims that the processual nature of aesthetic experience is far more fundamental to the way the world is structured and operates. “In general, consciousness is negligible” in subjective experience (ibid.: 11). According to Shaviro, Whitehead inverts the Kantian relationship between subject and object, self and work (ibid.: 12).<sup>13</sup> Deleuze develops Whitehead further. In his review of Smith (2015), Noe says:

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<sup>12</sup> This is an aesthetic of immanence. Sutton and Martin Jones say, “[...] It is the particular time and place of the artworks, in intersection with the specific histories of maker or context, that give the art its identity. Artworks, then, are the constructions of much larger forces than one single artist or even one historical trajectory, and so we need a way of understanding them that expresses this larger agglomeration” (Sutton and Martin-Jones 2008: 74-75).

<sup>13</sup> The inversion of the Kantian position is echoed in Deleuze too. Noe says, in his review of Smith’s critical essay on Deleuze, “Therefore, rather than an original apperception that grounds a recognition, which would ensure the closure of time onto a determinate and mutually reinforcing succession, we witness in Deleuze a veritable opening of time into the future – but of course not a future determined by a relation between a determinate past and a determinate present; it is rather a *pure* future. Deleuze’s own great reversal here is that the third synthesis enacts a violence upon the passive (“larval,” i.e., processual) subject, forcing it to awaken a dormant faculty of thought in itself – thereby, as Deleuze says, “engendering the act of thinking within thought itself [In Deleuze 1994: 114].” Rather than a critical *idealism*, then, we find in Deleuze’s more properly critical *realism* the notion that thought is primarily not something carried out by the mind, but is rather, following similar language as Deleuze’s rather gnomic definition of passive synthesis, something that occurs *in* the mind, not determined by either memory or reflection, and quite far from the order of categorical determination. In short, thought is something that happens to the mind before it is something actively carried out by the mind, conditioned by a violence delivered by the indeterminacy of the pure future” (Noe 2013: 168).

If Kant liberated time from its circular form, i.e., as the image of the eternal, then time must assume a linear form of movement that pushes into the indeterminacy of the future, which serves as both a necessary condition for the genuine *movement* of time, as well as the sufficient reason for the production of novelty in real experience.

Having thus explored the Deleuzian structure of time, which frames the analytic of concepts, Smith then guides the reader through the complex labyrinth that is the Deleuzian concept: a robustly temporal, and therefore, differential synthetic construct which, while lacking an *identity* in the strong substantial sense, nevertheless maintains a more fluid *consistency* that finds a complement in an internal variability. As such, the Deleuzian concept, it is argued, fulfils the critical injunction which forms the basis of Deleuze's overall philosophical project, namely, to properly conceive the conditions for the genesis of the act of thinking as primarily *creative* in nature, that is, thinking thought itself from the point of view of the conditions of the new, the singular, or the unique – in short, real experience conditioned by pure difference.

Noe 2013: 168-169

And to emphasise again the processual nature of encounters, Shaviro summarises

Whitehead's view that:

These "physical feelings" precede the subject; the latter is best described as the integration (in a quasi-mathematical sense), or as the "end" (both sequentially and causally), of the former. The subject solicited by the feelings that comprise it; it only comes to be through those feelings. It is not a substance, but a process. And this notion is not usually conscious; it only becomes so under exceptional circumstances.

Shaviro 2009: 12

This way of seeing things means that the subject is also a "*superject*: not something that underlies experience, but something that emerges from experience, something that is superadded to it" (ibid.). Whitehead says:

How an actual entity becomes constitutes what that actual entity is. This principle states that the being of a res vera is constituted by its 'becoming'. The way in which one actual entity is qualified by other actual entities is the 'experience' of the actual world enjoyed by that actual entity, as subject.

Whitehead 1929: 166

Shaviro explains this by saying that, "[t]he feelings cannot be separated from the subject for whom they exist; yet the subject itself can only be said to exist by virtue of these feelings, and in relation to them" (Shaviro 2009: 13). Whitehead says, "[...] the whole universe consists of elements disclosed in the analysis of the experiences of subjects. Process is the becoming of experience" (Whitehead 1929: 166). Echoing Whitehead's description of the relational nature of the emergence of feelings, Vitale says:



According to the principle of relation, all aspects of the world find their meaning and value relationally, in the contexts of their production, such that nothing in the world can be understood except relationally, with reification as an aspect of this process, but not its end.

Vitale 2014: loc 1934

Vitale's networkological project draws on (*inter alia*) Whitehead's consideration of process as a generative ontology. Vitale says, "Networks are a philosophy of process. Everything we experience in the world is only ever the same for a short while, with human scales of time mere flickers in the long durations of time at cosmic scales" (ibid.: loc. 1739). He talks about temporary reification:

Everything we experience always was and will one day again be radically different than it is here and now in front of us, such that ultimately, anything is only ever a temporary stasis within patterns of processes. [...] In this sense, to say that something "is" this or that, or is in this or that state, is only ever a convenient or useful fiction, for it describes, if often indirectly, the perspectival relation between an aspect of the world and those which grasp it in a particular context. [...] The networkological project sees each experience of the world as a limited reification, literally "thing-ification," of the processes of differentiation, intertwining, and emergence which brought it about. While reification is necessary if there is to be interaction and experience in the world, practices or models which take these snapshots of more encompassing processes of change as somehow ultimate tend to radically simplify the way they relate to the world. Rather than freezing the world into a collection of static images, this project views any aspect of the world as having been different in the past and likely the future, such that all entities, states, or reifications of other sorts conceal within them potentials, forces, and tendencies which are themselves result of others and will lead to others in turn. All networks and their elements are only ever patterns of symmetries, balances between forces which provide momentary localized stases within the dynamic changes at work in the world around them. Reifications always therefore need to be seen as related to contexts and processes of change beyond them, for failing to take the processural aspects of the world into account results in a lack of sync with the world, in practices as diverse as science and ethics.

Ibid.: loc. 1752

This state of affairs is truly universal. It applies at the gargantuan scale of galaxies to the minuscule quantum effects of the sub-atomic. Shaviro says:

There is always a subject, though not necessarily a human one. Even a rock — and for that matter even an electron — has experiences, and must be considered a subject-superject to a certain extent. A falling rock "feels," or "perceives," the gravitational field of the earth. The rock isn't conscious, of course, but it is *affected* by the earth, and this *being affected* is its experience.

Shaviro 2009: 13

This assertion of the universality of experiential feeling is called panpsychism<sup>14</sup>, which:

[m]aintains that thought is neither merely epiphenomenal nor something that exists in a separate realm from the material world. Rather, mind is a fundamental property of matter itself. This means that thinking happens everywhere; it extends all the way down (and also all the way up). There are differences of degree in the ways that entities think but no fundamental differences of kind.

Shaviro 2014: 86

This subject-superject is the 'becoming' described by Deleuze and Guattari (Deleuze and Guattari 1987 *passim*).

Regarding artworks as a particular assemblage of experiential feelings, Sutton and Martin-Jones say, "Artworks rely upon the conjunction of percept and affect, when the material 'passes into sensation,' and until then they are just clichés or ruminations of the material" (Sutton and Martin-Jones 2008: 76).

Concerning the nature of music as emerging from assemblages, Moisala, Leppänen, Tainen and Väättäinen say, "Within music and sound studies, the concept of assemblage encourages the examination of music and sounds as emergent, fluidly moving events

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<sup>14</sup> For a good discussion of panpsychism see Shaviro 2014 Ch. 4-5. Vitale says of panpsychism, "A panpsychist view of the world sees all matter as feeling and experiencing, if in a manner much less complex than that seen in living organisms and human beings. If mind is simply how matter feels itself, then more complex minds come about when matter complexifies. As a result, there is no need to consider life or humans as fundamentally different from what is around it, but rather, as results of emergent complexity. Moving beyond the hierarchical dualisms and human exceptionalisms which have been used to justify everything from the denigration of sex and the body to incredible violences against our environment, animals, and groups of people considered less special than others, such an approach views the world as composed of shades of grey rather than overly simplistic and conceptually violent hierarchies, so as to help us imagine more complex and less destructive futures" (Vitale 2014: loc 2668). The panpsychic stance is certainly not without its critics. Deleuze has been criticised for the panpsychism implicit in his metaphysics by, e.g., Meillassoux. "Everything would be growth, nothing would be fulgurance, irruption without any attachment to the past, without any link with the context in which it arrived. Not a gram of pure death would be allowed to us there, not a single entity without relation to that living and open Whole would be offered to us – not one negligence, in sum (neglegere as contrary of relegere, from which religion plausibly comes). Intensities, relations everywhere; the linked linked to the linked. Not one sole ravishing negligence: not one sole difference of nature irreducible to relational conformity. No exception, no entirely nonsubjective instance, only, again and again, returning from afar, and implacably, novelties full of the past that they at once contain and overcome. And this world, if it were our world, we would certainly have to accept. But what we would lack in this creative saturation would be this hollow tube of the fulgurite, this infinite and local break, capable of not curling up into these complex lives, fabricated of complicit lives, within which we swim to the point of suffocation. A breakage which, offering us the spectacle of a world traversed by the silent seism of a secret unlinking, would articulate the Universe with itself through the mediation of the trace of a lightning strike frozen as soon as it happened. Difference in nature ceasing to be vanquished by difference in degree. Difference fissuring nature beyond any degree. Creation and intensity almost everywhere, we can concede this; but what is more, some ruptures offering to the world the discrete reminder of its mad origin" (Meillassoux in Malik and Avanessian 2016: loc. 3562- 3574).

which engage a multiplicity of social, cultural, bodily and material forces and elements” (Moisala, Leppänen, Tainen and Väättäinen 2017: 14). They go on to consider Guilbault’s description of music and sounds as emergent from assemblages:

[Guilbault’s] concept of audible entanglements — which to us effectively echoes the Deleuzo-Guattarian assemblage — examines sites, moments, and modes of enunciation articulated *through* musical practices. So, far from being “merely” musical, audible entanglements... assemble social relations, cultural expressions, and political formulations’ [...] The Deleuzo-Guattarian concept of assemblage may adjust her approach a little further by possibly observing a wider range of likely components, such as different kinds of materialities and non-human elements, while it stresses the necessity to examine what is produced by the entanglements, therefore asking what this assemblage does and what makes it possible.

Ibid.: 15

Born makes similar points about the complex nature of musical and sound assemblages. She says:

All four planes of social mediation enter in dynamic ways into musical and sonic assemblages. The four are irreducible to each other and each has a certain autonomy; yet they are articulated in contingent ways through relations of synergy, affordance, conditioning or causality.

Born 2013: 32

And she elaborates:

The idea of a musical assemblage addresses the way that music’s mediations take a number of forms — social, corporeal, discursive, visual, technological and so on — which cohere into constellations that endure and take particular historical shapes.

Ibid.: 32 f33

Such a view of the immanence<sup>15</sup> of what Born calls “musico- or sonic-social-technological assemblages” (ibid.: 32),<sup>16</sup> allows her to make this observation, which places music as an immanent part of the Bourdieuan ‘Socius’, far removed from notions of Platonic ideals:

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<sup>15</sup> Immanence here is an opposition to the view that there can be an adequate “transcendent” conceptual or analytic representation of musical form that is independent of the reality it purports to map. For the immanentist, there are no transcendent concepts or models of musical objects; but affects, generative processes, the production of music by “musical machines”. Thanks to my supervisor Dr David Roden for pointing this out.

<sup>16</sup> Born cites as examples, BitTorrent-enabled file-sharing, to iPod-listening, to live laptop ensemble, to internet-based distributed music-making (Born 2013: 32). These examples, some of which are now obsolete or superseded, show just how quickly the musicotechnological worldtwist moves on.

The framework amounts to an anti-metaphysical, non-essentialising, empirical analytics of the diverse and changing forms of the social mediation of music and sound; and it permits us to discern such differences without succumbing to a tragic metaphysics of musical co-presence and its loss, or a dualism that valorises the aurally authentic over what is deemed to be artificial or secondary.

Ibid.: 32-33

For Born, the notion of assemblage “suggests that music has no essence but a plural and distributed socio-material being, enabling music to be cognized as a constellation of mediations of heterogeneous kinds” (Born 2012: quoted in Moisala, Leppänen, Tainen and Väättäinen 2017: 17). This description of the musical assemblage fits well with Small’s notion of ‘musicking’ (Small 1998), which analyses the aesthetics of music-making in terms of processes rather than a scientific analysis of reified ‘things’<sup>17</sup> (see Goehr above); and so a Whiteheadian view of panpsychism and aesthetics as “first philosophy” (Shaviro 2014: 13), sits well with a broadly Smallian-Deleuzo-Guattarian consideration of the musical rhizome.

Vitale describes the world as a series of inter-connected networks. Networks are, he says, a philosophy of relation. He adds:

As a philosophy of emergence, the networkological project is also a philosophy of relation, for it views complexity as that which emerges as it differentiates and then intertwines, or networks, with itself. All reifications, disjunctions, or separations can then be seen as aspects of the manner in which the self-differing stuff of the world differentiates and intertwines with itself. From such a perspective, everything is then ultimately related to everything else, even if by its disjunction.

Vitale 2014: loc 1813

He subscribes to a broadly Whiteheadian view of experiential aesthetics. He says:

The networkological project articulates a theory of experience. According to this perspective, each experiencer can be seen as having a networked world of experience which is carved into interconnected segments, known as worldsllices. Each worldslice is a network of other worldsllices, foregrounded against a background, which is composed of more networks of worldsllices, and this is layered into levels at practically and potentially infinite levels of scale. Worldsllices are abstractions

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<sup>17</sup> On the futility of binary reifications, Vitale says this, “The world is and can be infinitely more complex than this. For these reasons, this project will work to recast binary models of the world as continua of intensities, moving from models based on “black and white” distinctions to “shades of grey.” It will then show how the networked intertwining of these intensities, themselves the product of forces and tendencies within and yet also beyond otherwise reified matters, can be used to account for what binary models do, but in ways which can also tie these back into the contexts and processes of their production, thereby avoiding many of their otherwise often profound limitations” (Vitale 2014: loc 1934).

from a given world of experience, even as each world of experience is also an abstraction in turn from the world of experience as such, that which exceeds yet manifests in all worlds, with each experiencer as a topologically non-orientable worldtwist between these. Each worldslice manifests as it does by means of the intertwining of the networks of a given experiencer, those of other experiencers, and those of the world. This intertwining produces networks of reference which form the grammar of worldsllices, which appear to an experiencer in a world at a given location in their spacetime, and upon which more networks of reference can be applied to produce multiple interpretations of networks of worldsllices, depending on the complexity of the experiencer in question. Complex brains, for example, are able to layer networks of reference in this way. Nevertheless, since all networks are composed of other networks, all networks of experience and their networks of reference are ultimately layered at potentially infinite levels of scale.

Ibid.: loc 1947

Vitale acknowledges that complexity of the prehending entity accounts for the nature of the worldslice it is able toprehend, but that view does not preclude prehension at every scale, from the cosmic to the quantum. He says this:

As an immanent philosophy, this project sees all worldsllices, from humans to atoms, as worldtwists, which is to say, experiencers, even if simple worldsllices only experience the world in simple ways. Matters like atoms feel the world around them, even if they are not able to experience this experiencing reflexively, a more complex form of experience known as consciousness. Humans, however, are complex in this manner, and so can feel their brains, thereby producing thoughts, which are layered into the feedback between how they feel their brain and body, thereby producing feelings and emotions, which are layered into the feedback of both of these with how they feel their bodies, thereby producing sensations. Those experiencers without a central control system like a brain nevertheless seem to only feel the way their bodies feel the world, in a relatively decentralized manner, and in a manner which cannot experience its own experiencing in the manner of conscious or self-conscious organisms.

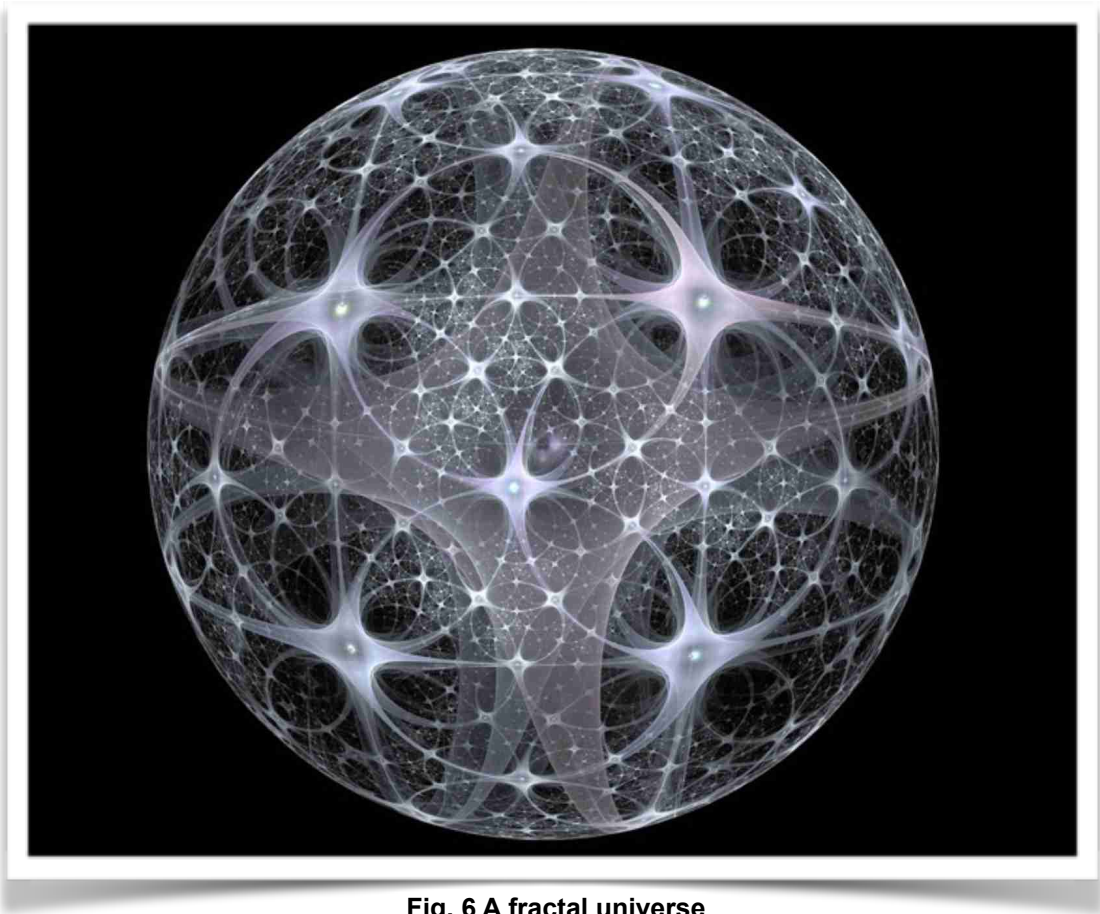
Ibid.: loc 1960

This implies the emergence of consciousness at a ‘critical mass’ of reflexive worldtwist. It has the added benefit of negating Cartesian dualism.<sup>18</sup> Vitale reminds us that the world is (for practical purposes) infinitely complex. He says, “This sort of networked layering of worlds and realities is fractal and holographic<sup>19</sup>, for there are as many realities as there are

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<sup>18</sup> Although, as Meillassoux (*op. cit.*) points out, the panpsychic stance brings the “problematic” (for some) feature of generalising subjectivity everywhere.

<sup>19</sup> “The fractal and holographic refraction of self-differing describes the manner in which emergence manifests relationally, for fractals and holographs are fundamentally infinite in relation to more traditional notions of limitation, with fractals proliferating to potentially infinite levels of scale, and holographs made up of parts which only make sense as aspects of a whole which exceeds any part or even the sum of these, and which can be fractally subdivided as well. Reifications can only ever grasp small aspects of such refractive structures, even as they can contribute to, yet also hinder, their processes of emerging” Vitale 2014: loc 1868.



**Fig. 6 A fractal universe**

groups of experiencers, just as there are as many worlds as there are individual experiencers” (Vitale 2014 loc. 1974). Vitale describes the world as fractal because its connectedness means that it is:

[m]ultiplying in layers within layers of burgeoning complexity. We live in an age of radical differentiations, cascades and crashes, decentralized affiliations and baroque complexifications, all of which shatter as they recompose and destroy as they create. It is as if we woke up one day, and suddenly all the points in the world had burst into webs, all the straight lines into nets of wires, and all the planes and volumes revealed textured layerings of branchings within branchings

Ibid.: loc 118

It is a world where the topography of connections, schematically, is identical at every level of zoom. Vitale says:

The networkological project views networks as always nested, or layered, into other networks, at potentially and practically infinite levels of scale. Such a structure is what Benoît Mandelbrot famously described by means of the term “fractal.” Having no smallest or largest scale, such a “scale-free” view of the fabric of the world is “self-similar” in the manner whereby it differs from itself and its contexts, and it is intertwining of sameness and difference, differentiation and sync, which gives rise to the proliferation of qualities, entities, forms, and processes which comprise our world.

If this metaphysics is correct, it demonstrates why Deleuze's use of the rhizome as a metaphor for the structure of the world is appropriate. This supra-layering is equivalent to Deleuze's Plane of Consistency. It is the totality of Deleuzian potential worlds.<sup>20</sup> Each actualised world for a particular prehender is just one of the overlapping worldtwists which Vitale describes. That prehender being a Whiteheadian *res vera*<sup>21</sup> in virtue of its becoming; a Deleuzian reterritorialisation. Sutton and Martin-Jones say, "[...] Identity is always in motion, it is always coming-into-being, a never-ending project of *becoming*. It is the simple fact of becoming that is behind the creation of the rhizome, since the rhizome exploits and enjoys continual change and connection, rather than seeking to fix or prevent it" (Sutton and Martin-Jones 2008: 46). If the prehensions of any particular *res vera* constitute (in virtue of aesthetics being first philosophy) its aesthetic worldview, then there are clear implications for such an aesthetic arising from the number and complexity of its networked overlaps and resonances (Vitale 2014: loc. 1974).

Vitale's Networkological Project is well-summarised in this quotation:

**Networks dream.** Such a provocative networking of concerns from so many domains, from science and mathematics to philosophy, theology, pedagogy, ethics, erotics, politics and beyond, is bound to be controversial, and this is the intent. Networks think differently, they force and help us to find new

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<sup>20</sup> In *Difference and Repetition*, Deleuze says this regarding the actual, the virtual and the possible. "What difference can there be between the existent and the non-existent if the non-existent is already possible, already included in the concept and having all the characteristics that the concept confers upon it as a possibility? Existence is *the same* as but outside the concept. Existence is therefore supposed to occur in space and time, but these are understood as indifferent milieux instead of the production of existence occurring in a characteristic space and time. Difference can no longer be anything but the negative determined by the concept: either the limitation imposed by possibles upon each other in order to be realised, or the opposition of the possible to the reality of the real. The virtual, by contrast, is the characteristic state of Ideas: it is on the basis of its reality that existence is produced, in accordance with a time and a space immanent in the Idea. Secondly, the possible and the virtual are further distinguished by the fact that one refers to the form of identity in the concept, whereas the other designates a pure multiplicity in the Idea which radically excludes the identical as a prior condition. Finally, to the extent that the possible is open to 'realisation', it is understood as an image of the real, while the real is supposed to resemble the possible. That is why it is difficult to understand what existence adds to the concept when all it does is double like with like. Such is the defect of the possible: a defect which serves to condemn it as produced after the fact, as retroactively fabricated in the image of what resembles it. The actualisation of the virtual, on the contrary, always takes place by difference, divergence or differentiation" (Deleuze 1994:211-212).

<sup>21</sup> *Res vera* is the Latin phrase which Whitehead uses in the context of meaning a real, or true, thing.

connections, they intertwine what seemed distinct, mutate what seemed fixed, push us to reimagine the way the world has been, and to rethink how it could be.

Ibid.: loc 3165

Elsewhere in this ~~dissertation~~-assemblage I have described the problematic nature of the fuzzy boundaries which exist between objects and their environments, in effect, Vitale's network connections, at all levels of scale. In the context of this consideration of aesthetics, those objects and environments equate to the *res verae* and the worldtwists described by Whitehead and Vitale, respectively; which is to say, the manifestation of 'things' through Whiteheadian prehensive encounters, and the interactions which occur in Vitale's networked worldview. It is this state of affairs which means that a Deleuzo-Vitaleo-Whiteheadian consideration will succeed and why a scientific, reductionist attempt at ontology is bound to fail (or, at any rate, be hopelessly incomplete). Vitale calls such reductionist philosophies "philosophies of certainty" (ibid.: loc 3125). He eschews this reductionism, when he says:

Descriptive philosophies believe most certainly in the rejection of reflective organization around reflective modes of certain belief, with all other local descriptions produced by means of the refractions of this refusal of certainty, with the embrace of refraction this brings, in regard to particular situations. While philosophies of certainty have their uses, they tend to resonate with conservative or cancerous modes of organization, with philosophies of description having more in common with distributed modalities.

Ibid.: loc 3125

Let us consider a musical/musicking example to examine how the foregoing might play out.

1

P RI V I

V V V RI

P I I P

P = prime I = inversion R = retrograde RI = retrograde inversion V = variant

**Fig. 7 Schenkerian reduction of the thematic counterpoint of the first movement of Beethoven Op. 132 (Chua 2014: 59)**



Perhaps most people would recognise this diagram (Fig. 7) as some kind of musical notation. Some might be able to play the notes depicted on a keyboard or other instrument, or even to sing them. But very few would instantly know that the notes are a representation of the thematic material of the first movement of Beethoven's late string quartet, his Opus 132 in A minor. They are not the notes of the score, but a Schenkerian reduction of the thematic counterpoint of the movement (Chua 2014: 59). The degree of familiarity of a person with this piece of music will vary from none to a great deal. If Whitehead is right, then the *res vera* that is called Beethoven's Opus 132 is a very different thing for everybody, depending upon the degree of familiarity (or reflexive prehension) between them and it. There are as many aesthetic states of the musical work as there are prehensile feelings of it. Clarke (2005: 156-188) has an interesting analysis of the first movement of the Opus 132. Supporting the 'many aesthetic states' hypothesis, he says, regarding human musical listening:

Nonetheless, the ecological approach presents perception as a mutual relationship between organism and environment, so that every description of perception is therefore specific to an individual's capacities and perspective — even if based in common ecological principles.

Ibid.: 156

He goes on to describe a methodology of considering ways of thinking about the interactions of listeners to music (and the Opus 132 in particular):

My approach will be to outline and describe some of the perceptual opportunities that exist in the piece based on my own experience of the music and the writings of others, without prescribing which (if any) of these an individual listener might be aware of — but showing how they can all be

understood within the approach developed in this book.<sup>22</sup> My motivation, therefore, is primarily theory-oriented rather than piece-oriented: the music is used to assess the value of an ecological approach for understanding the perception of this kind of music.

Ibid.: 156-157

It is proper to construe what Clarke describes as an 'ecological approach' as being what Whitehead would call the prehension of feelings and what Vitale calls the interrelationship of networks. So a consideration of some of Clarke's material is a useful precursor to an extrapolation of some of those ideas to the musics of the vignettes participants, and music and technology more generally.

Clarke considers the Opus 132 in the light of Agawu's (1991) semiotic analysis. Clarke says that:

No hierarchy of perspectives is implied here, since the sounds of this music (as with any sounds) specify a whole variety of objects or even events simultaneously: a sound can be simultaneously the sound of a cello, of Western art chamber music, of a G# rising to an A, of the opening of the first movement of Beethoven's Op. 132 string quartet... Every individual listener is more or less attuned to these different opportunities, some of which may be more widespread as learned sensitivities in the general population (most people are probably more likely to hear "cello" than "Beethoven Op. 132"<sup>23</sup>), but this is a matter of differential perceptual learning rather than of musical or psychological significance.

Clarke 2005: 158-159

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<sup>22</sup> Clarke describes his approach as "ecological". He says, "Perception is the awareness of, and continuous adaptation to, the environment, and, on the basis of that general definition, the perception of musical meaning is therefore the awareness of meaning in music while listening to it. It can be distinguished from musical meaning that arises out of thinking about music, or reflecting on music, when not directly auditorily engaged with music. Under those circumstances music is imagined or recalled, rather than perceived, since nothing is going on in the peripheral auditory system (the outer, middle and inner ear). Ecology is the study of organisms in relation to the environment, and the approach to perception presented [...] is characterized as ecological because it takes as its central principle the relationship between a perceiver and its environment" (Clarke 2005 4-5). This approach serves Clarke's purpose, but as we have seen elsewhere in this dissertation-assemblage, those boundaries are often not quite so determinate as Clarke avers. The kind of "internal" musical perception (thinking and reflecting) which Clarke excludes from his environmental consideration, might really be included in a consideration of Whiteheadian prehension and feeling-formation. Indeed, Whitehead gives specific consideration to what he calls "perception in the mode of causal efficacy," which specifically includes memory production. He says, "Thus perception, in this primary sense, is perception of the settled world in the past as constituted by its feeling-tones, and as efficacious by reason of those feeling-tones. Perception, in this sense of the term, will be called 'perception in the mode of causal efficacy'. Memory is an example of perception in this mode. For memory is perception relating to the data from some historic route of ultimate percipient subjects M1, M2, M3, etc., leading up to M which is the memorizing percipient" (Whitehead 1929: 120). I shall develop later in this chapter/abstract machine a consideration of the number and weighted strengths of the all-inclusive ecological considerations in the formation of prehensile aesthetics.

<sup>23</sup> See Krumhansl 1998

These remarks emphasise that there is an infinite number of cultural connections in the “cultural space” (Clarke 2005: 158) in which the Op. 132 circulates and operates. Whilst there might be links and overlaps in their worldslices, no two auditors of the musical material of the Op. 132 will bring exactly the same prehensions to bear upon it. Further, no single auditor can hear precisely the same Op. 132 twice.

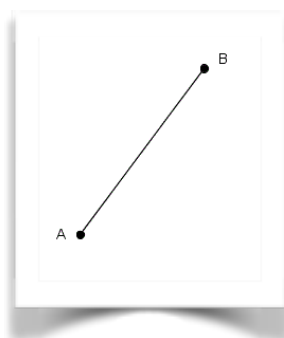
It is a good point at which to introduce a discussion of how the weight or strength of the connections determine the nature, albeit always *pro tem.*, of the *res verae* under consideration, whether they be a piece of music, a listener, a composer, or anything else at all. Vitale joins the notion of holographic existence with his description of the fractality of the world to explain how complex *res verae* can emerge. Regarding emergence he says:

This project also views some aspects of the world as networking the infinite potential of its aspects into greater intensities than others, not only in terms of quantity, but qualitatively in relation to their differentiation and intertwining within networked emergence. When the networked fabric of the world contains itself more intensely in this manner, the result is potential which can emerge in practically and potentially infinite ways, in regard to the self-differing refraction of these potentials with themselves as matters and energies and all to which they give rise.

Vitale 2014: loc. 1482

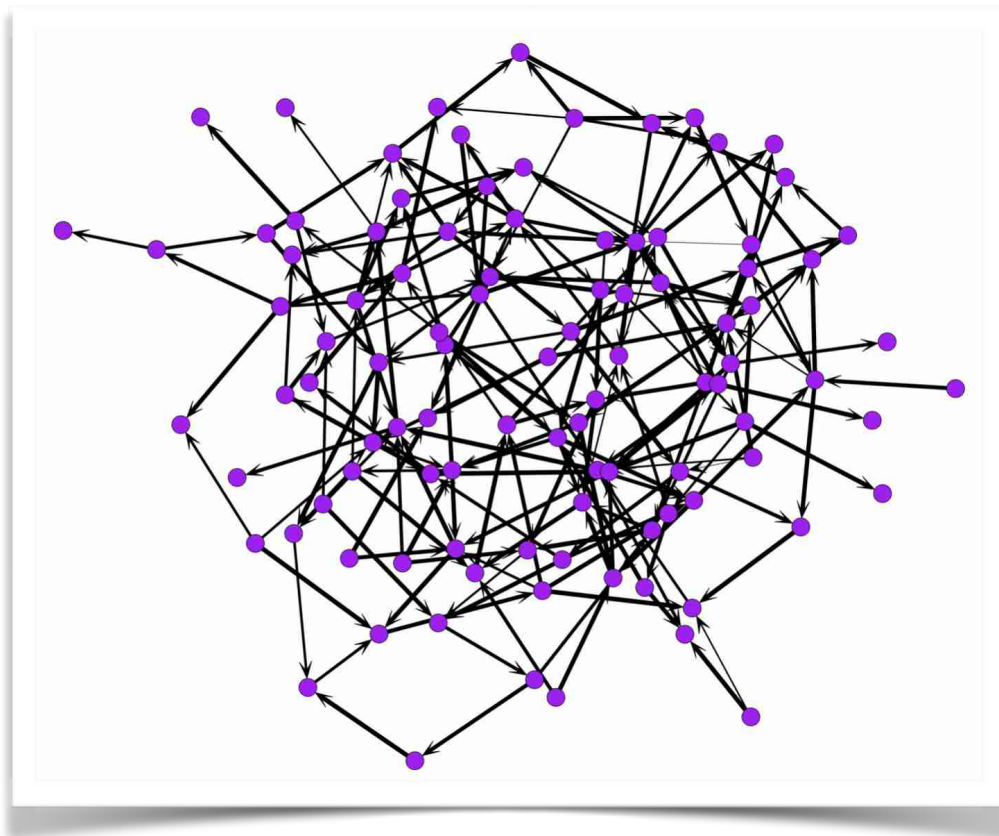
He explains holography as “a form of complex self-similarity” (ibid.: loc. 1857). When the fractal and holographic aspects of the world combine, they “intertwine in a manner which is emergently self-differing, they describe how complexity can manifest in the structural fabric of an entity [...]” (ibid.: loc. 1857).

Consider the simplest case of an intertwining. Entities A and B (Fig. 8) are joined in an experiential feeling encounter (an aesthetic encounter, *pace* Whitehead and Shaviro).



**Fig. 8 Stylised aesthetic encounter**

At any moment in time, in diagrammatic terms, the thickness of the line joining them represents the intensity of the process which is that experiential feeling encounter. As the nature of the encounter becomes more complex (with more inputs from more and more prehensile entities), naturally a diagrammatic representation of it becomes more complex too (Fig. 9).



**Fig. 9 Network of aesthetic encounters**

Some of the conjoining lines are of differing intensities from the others, some 'weaker' some 'stronger'. Some of the nodes are joined to more than one other node. The number of joins to other nodes we might call the nodal valency.<sup>24</sup> The higher the valency (numerically) and the higher the total 'strength' of the joins, the 'richer' is that particular experiential encounter. Also note that in this diagram, the connections are depicted by one-way arrows, but in almost all circumstances there is a two-way relationship in the

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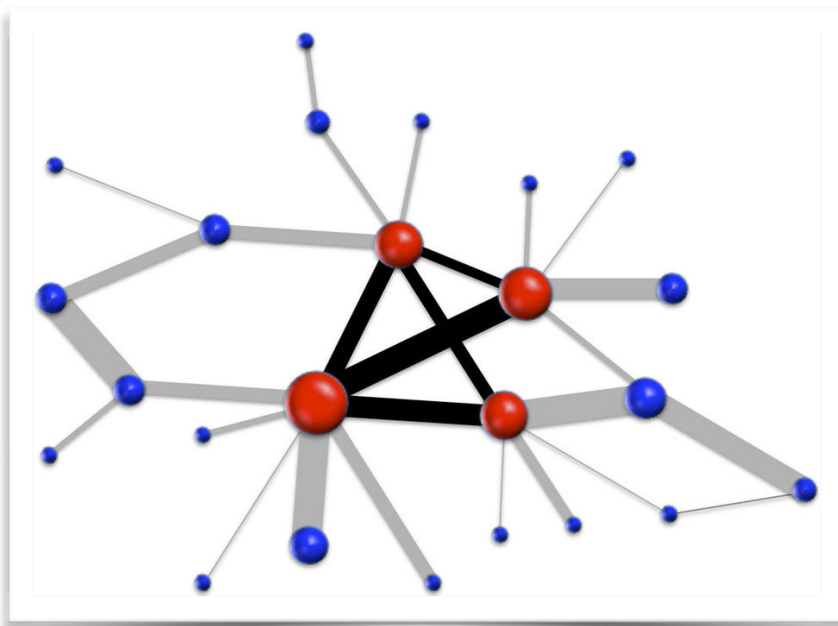
<sup>24</sup> Valency is what Alstott, J., *et.al.* 2014 call "node degree".

experiential encounter between nodal entities. Whilst it might be thought that double-headed arrows ought to represent this state of affairs, it is the case that the strength of the relationship is not always equivalent in reciprocal directions. So often, the relationship should be represented by parallel single arrows pointing in opposite directions, each with a thickness proportional to the strength of the encounter (Fig. 10).



**Fig. 10 Asymmetric reciprocal aesthetic encounter**

Before considering how this aesthetic process manifests itself in the world, it is necessary to explore further what Vitale means when he says that aspects of the world “intertwine in a manner which is emergently self-differing, they describe how complexity can manifest in the structural fabric of an entity [...]” (Vitale 2014: loc. 1857). As we have seen, Whitehead says that the process of these intertwinings is causal in things manifesting themselves in the world.



**Fig. 11 Diagrammatic “weighted rich clubs”(Alstott, J., et al. 2014)**

The entity which manifests itself as the four red nodes in this diagram (Fig. 11) is what network scientists call an example of “weighted rich clubs” (Alstott, J., *et al.* 2014). They say:

Network analysis can help uncover meaningful regularities in the organization of complex systems. Among these, rich clubs are a functionally important property of a variety of social, technological and biological networks. Rich clubs emerge when nodes that are somehow prominent or ‘rich’ (e.g., highly connected) interact preferentially with one another.

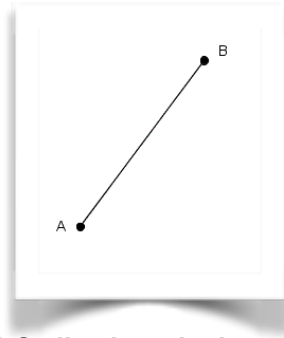
Ibid.

Whilst their work applies to “a variety of social, technological and biological networks”, it is profitable to extend the notion into Vitale’s fractal and holographic space (“Ground” (Vitale 2014: *passim*)), Deleuze’s ‘plane of immanence’ (Deleuze and Guattari 1987: *passim*), the realm of Whitehead’s ‘potentials’ (Whitehead 1929: 149 and *passim*).<sup>25</sup> All three of these descriptions are essentially the same. Such an extension is metaphorical, but the metaphor can do useful work here in describing a mechanism for the emergence of temporarily reified entities: nodes for Vitale, nexûs for Whitehead, the actual for Deleuze. I speculate that using a similar methodology to that of Alstott *et al.* 2014, regarding the calculation of a “topological rich-club coefficient  $\phi$  [which] is the ratio between the number of existing connections between the rich nodes,  $E$ , and the number of possible connections between them” (Alstott *et al.* 2014), it would be possible to assign actual numerical values to the ‘richness’ of the aesthetic feeling which emerges in experiential assemblages. The higher the numerical value for  $\phi$ , the richer the experience. In a weighted rich club system, some of the weights might be negative. However, the world is not so simple, most of the time. What actually constitutes a ‘possible connection’ is intractably difficult to determine, and assigning meaningful weight to connections is, likewise, problematic. But, numerical calculations aside, does the general model stand up as a metaphorical description for emergence, and the persistence of emergent *res verae*?

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<sup>25</sup> “Potentiality becomes reality; and yet retains its message of alternatives which the actual entity has avoided. [...] If the term ‘eternal objects’ is disliked, the term ‘potentials’ would be suitable. The eternal objects are the pure potentials of the universe; and the actual entities differ from each other in their realization of potentials (Whitehead 1929: 149).”

Elsewhere (Hewitt 2013) I described how the development of a fungal mycelium (which is actually a rhizome) might be useful as a metaphor for the emergence of musical meaning. The same metaphor can be bent to serve our discussion here, that is to act as an analogy for the emergence of *res verae*. Here again is the diagram of two nodal points joined (Fig. 12 as in Fig. 8).

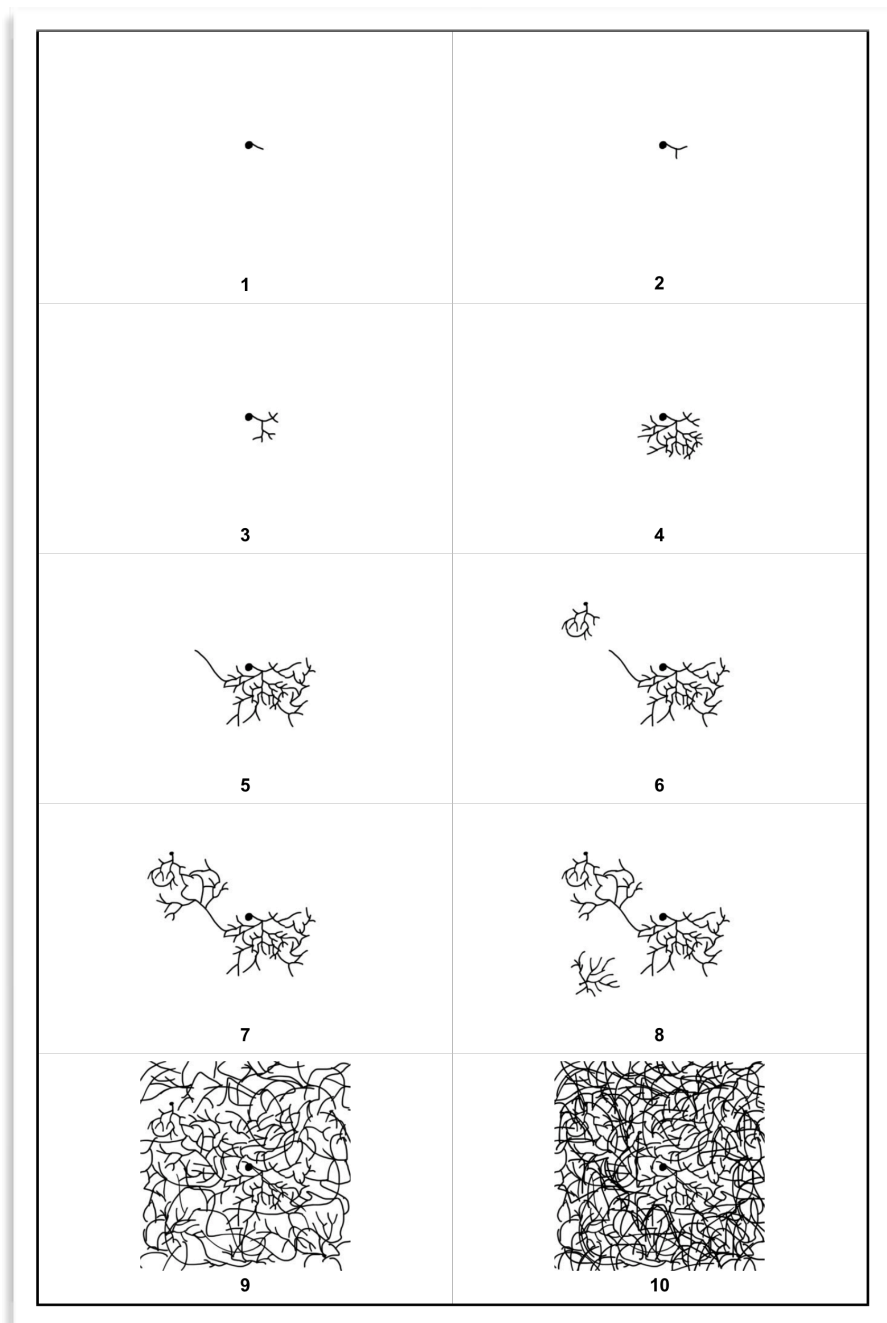


**Fig. 12 Stylised aesthetic encounter**

It can be seen how this is topologically equivalent to section 1. of the stages of mycelial growth diagram which is a diagrammatic representation of mycelial growth (Fig. 13).<sup>26</sup>

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<sup>26</sup> In Fig. 13, sections 1 to 5 show the development of a mycelium by the growth and branching of hyphae (which are able to branch at their apices and also to form lateral branches (Harris 2008)). Sec. 6 shows the development of a different mycelium (which may or may not be of the same species as the first (Cairney and Burke 1996)). Sec. 7 shows a connection of hyphae between the two mycelia. Sec. 8 shows yet a third mycelium which then connects to the conjoined mycelium composed of the first two. Secs. 9 and 10 show how these independent mycelia grow on to form a dense mat of interconnecting hyphae. These structures may extend over considerable distances.



**Fig. 13 Stages of mycelial growth (after Harris 2008)**

The mycelial example shows how complex *res verae* can emerge from the aggregated interactions between simple (bipolar nodal connections) as they intertwine and mingle. Vitale's use of the term 'worldtwists' is an apt descriptor. Because the topography in the rhizome is fractal, then any connection between apparently simple nodes may, in fact, be a connection between complex worldtwists (as in, e.g., fig 7 and upwards). Such



connections may occur at (and 'between') any level of fractality. There is only complex emergence, there is no atomistic ontology.

There are several diagrams throughout this ~~dissertation~~-assemblage. Often the text describes the diagrams as a metaphorical descriptor of some or another process. All diagrams are metaphorical because it is impossible to depict relationships (especially diachronically) onto cartesian coordinates. After all, what could be said to be the spatio-temporal location of a memory or the relationship between Beethoven's F# and G in the Opus 132? Where would they be plotted and what could be the scales? Zdebik says, "A diagram is commonly understood as a drawing conveying information about something incorporeal" (Zdebik 2012: 1). He goes on:

The diagram does not resemble particular elements in an imitative way; rather, it displays abstract functions that make up a system. The diagram, then, is the dynamic, fluctuating process occurring between static structures. As a concept, it describes the flexible, elastic, incorporeal functions before they settle into a definitive form.

Ibid.

It must be presumed that Zdebik's use of the term 'static structures' must mean something like Whitehead's 'actual entities'. The diagram, Zdebik says, "[v]alues the unformed, the state of flux, the dynamic, the movement towards actualization. It also deals with organization, forces at work in social and cultural constructs; it is a way to travel from one system to another" (ibid. 1-2):

In a cultural object such as a painting, for example, the theory of the diagram offers something more than typical hermeneutics because it searches for essential states of abstraction within the actual fulguration of an image. It also shows the far-reaching connections at play in a work of art, and the multiple parts that come to work in its assemblage.

Ibid.: 2

A diagram, then, tries to depict the relationships which exist in an assemblage between multiple parts which are, jointly, a condensate from the total plane of consistency, i.e., that which is made actual from the realm of the virtual. The difficulty for the diagrammer is two-fold:

That the parts that are fitted together are not uniform either in nature or in origin, and that the assemblage actively links these parts together by establishing relations between them.

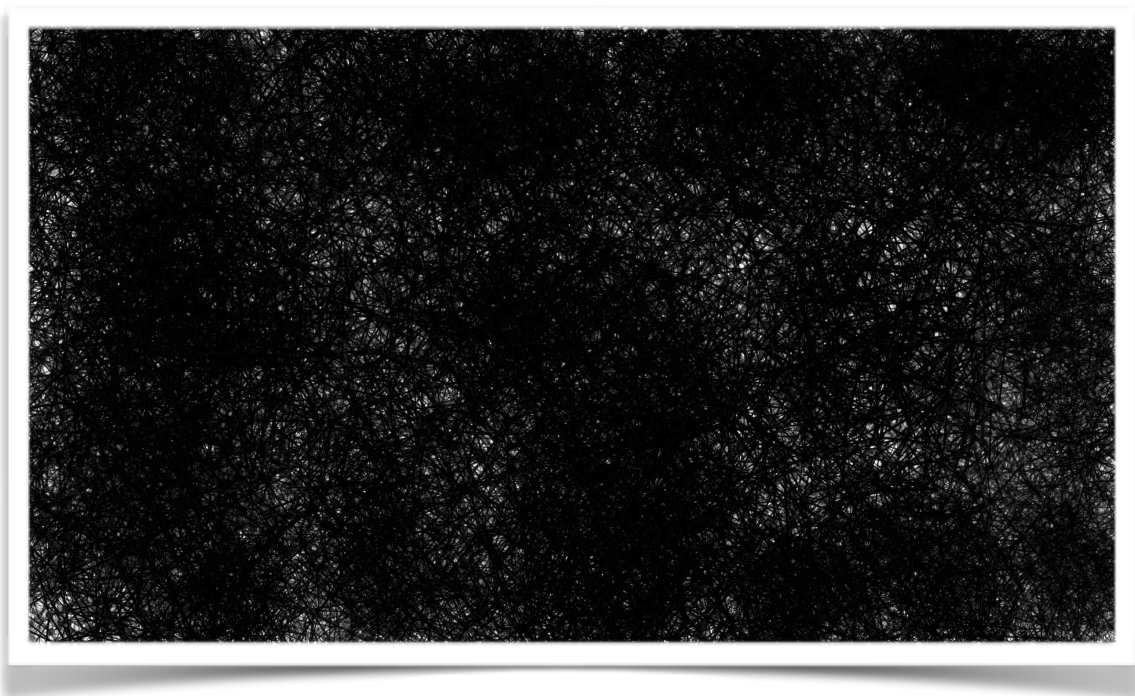
DeLanda 2016: 2

This condensation from the virtual occurs when:

[a]t a given point in time the setting of a parameter happens to be a critical value and the assemblage undergoes a transition (to become, for example, a stratum), the zone of intensity finds itself in, and the crossing of the threshold, are actual states and events. But most of the time the zones and thresholds that structure the space of possible parameter values are not actual but virtual. Thus, the 'virtual is not opposed to the real but to the actual... Indeed, the virtual must be defined as strictly a part of the real object — *as though the object had one part of itself in the virtual into which it is plunged as though into an objective dimension.*'<sup>27</sup>

Ibid.: 109.

The virtual, described here by both Deleuze and DeLanda equates to Vitale's description of a 'ground'. What all this means is that in any diagrammatic depiction of assemblages, the virtual or ground is as important a consideration as the actual. So a non-discriminatory diagram of an actual assemblage situated in the virtual realm would look like Figure 14.



**Fig. 14 Vitale's "ground state"**

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<sup>27</sup> DeLanda here quotes Deleuze, *Difference and Repetition* (1994: 208) italics in original).

This undifferentiated diagram is Deleuze and Guattari's immanent plane, the cosmic *plane of consistency* that exists as a limit of deterritorialisation. It is the undifferentiated rhizome. DeLanda says:

We can conceive of this immanent plane in our minds by mentally forcing all movements of deterritorialisation to their absolute threshold. The concept of the plane is the result of carrying out this operation of taking to the limit.

Ibid.

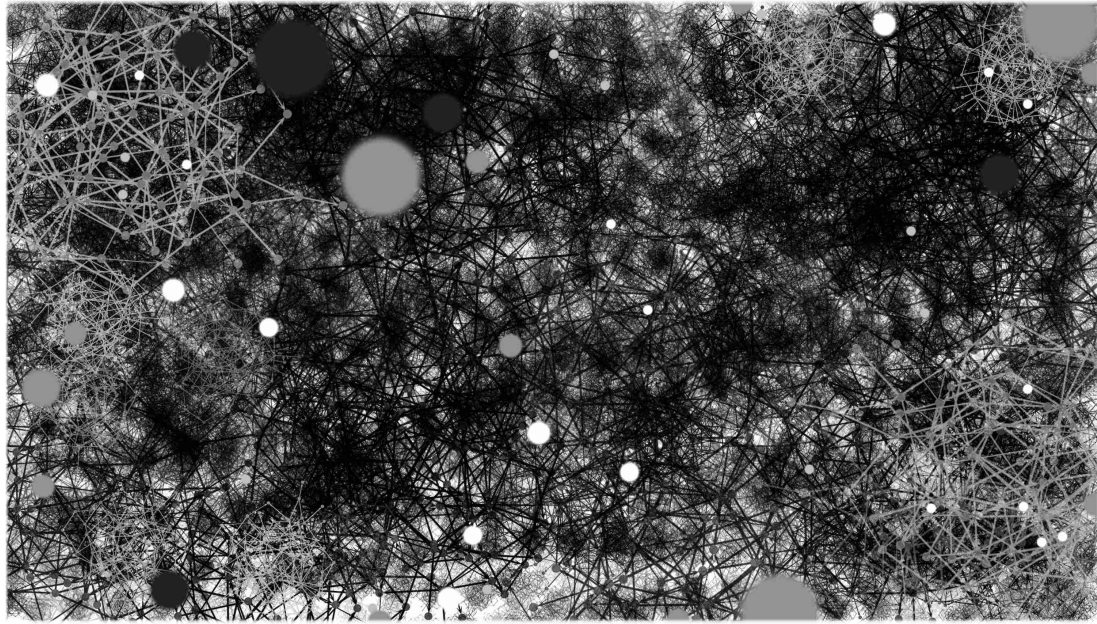
Like the emergence of the assemblage itself from the virtual, we need to make discriminatory judgments about how to diagrammatically depict the emergence of the actual from its virtual ground in order to make any sense of the diagram. And we do this by performing the opposite operation to that which DeLanda has just described (forcing deterritorialisation to the limit). So, instead, we start with the limit condition of the *ideally continuous* plane of consistency:

[a]nd then derive all assemblages (and their material and expressive components) as the products of a process of actualisation, **a process that breaks up the continuous plane into discrete or discontinuous entities**. Deleuze and Guattari refer to these discontinuous, segmented entities as 'lines', and usually refer to the components of an assemblage as segments or lines; some rigid (with a high degree of territorialisation), some supple (low degree of territorialisation), while still other act as lines of flight, marking the directions along which an assemblage can become deterritorialised.

Ibid. (my emphases)

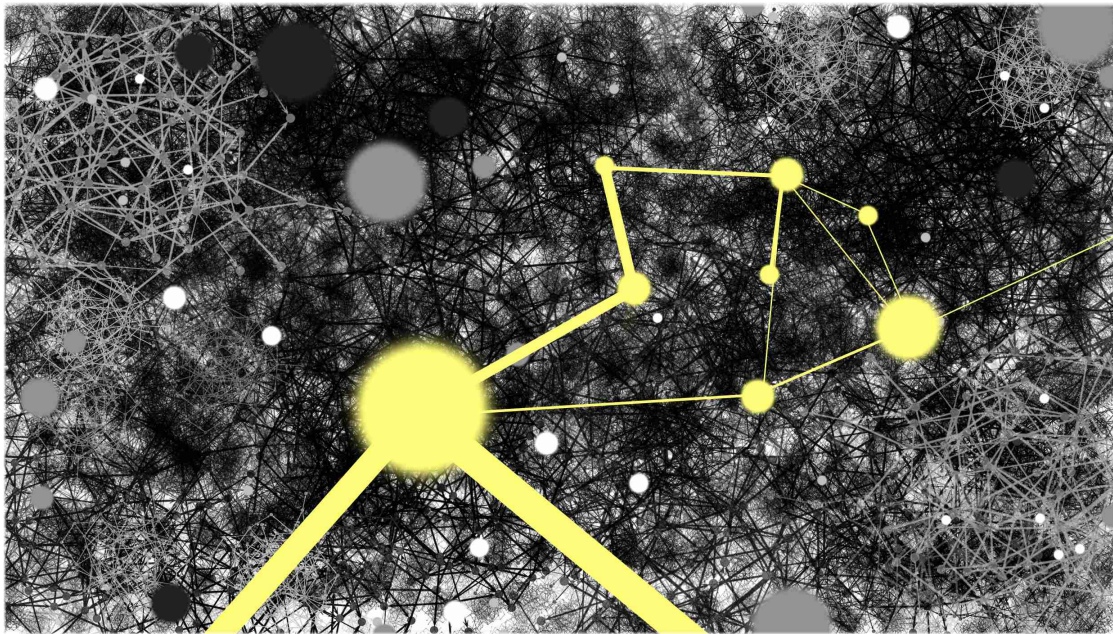
If this process is considered in stages, diagrammatically it proceeds like this.

Firstly, discrete entities begin to emerge as part of the process of actualisation. Rigid territorialisations then form into strata (Fig. 15).



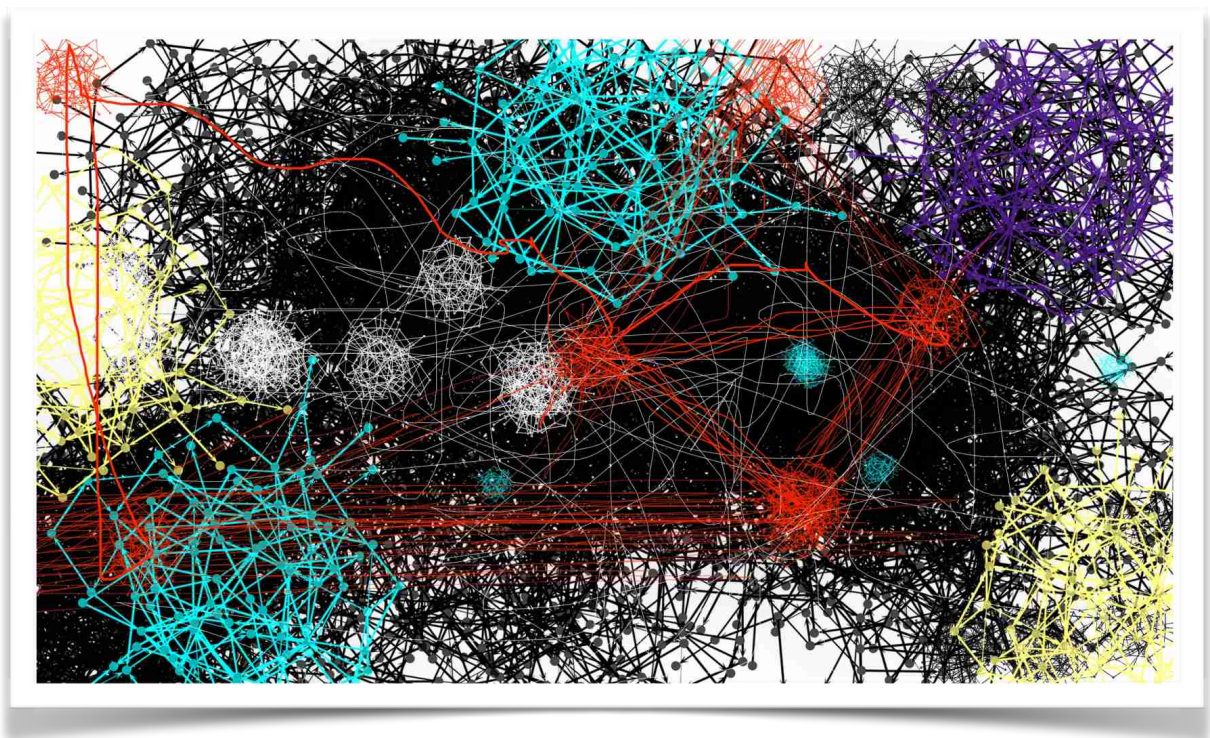
**Fig. 15 Clusters appear in Whiteheadian experiential space.**

But the territorialised strata are not limit conditions. Because of the fractal nature of the ground (plane of consistency) which Vitale describes, the de- and reterritorialisation continues at every level of the plane (Fig. 16).



**Fig. 16 Dense clusters appear in Whiteheadian experiential space**





**Fig. 17 Richly clustered Whiteheadian experiential space**

In Figure 17, Zdebik's 'far-reaching connections and multiple parts' have been discriminatively given colours to distinguish them from the virtual ground (white background in the picture plane), but the ground is as important as the emphatic colours in the overall nature of the assemblage. DeLanda says:

Now that we are in possession of a definition of a diagram, and that its ontological status relative to the actual components of an assemblage has been elucidated, we can attempt to tackle the much harder problem of conceptualising the cosmic space formed by all diagrams, what we referred to [...] as the 'plane of consistency'.

DeLanda 2016: 122

Deleuze and Guattari explain:

Far from reducing the multiplicities' number of dimensions to two, the *plane of consistency* cuts across them all, intersects them in order to bring into coexistence any number of multiplicities, with any number of dimensions. The plane of consistency is the intersection of all concrete forms. Therefore all becomings are written like sorcerers' drawings on this plane of consistency, which is the

ultimate Door providing a way out for them. This is the only criterion to prevent them from bogging down, or veering into the void. The only question is: Does a given becoming reach that point? Can a given multiplicity flatten and conserve all its dimensions in this way, like a pressed flower that remains just as alive dry?

Deleuze and Guattari 1987: 251

So, perhaps a diagram drawn in the plane is a poor metaphorical depiction of condensates from the plane of consistency, limited, as it necessarily is, to two cartesian dimensions and a frozen-in-time-like snapshot for a chronic dimension; frozen always already *in media res*. As Zdebik puts it, “The diagram takes a snapshot of a multiplicity in a constant state of flux” (Zdebik 2012: 12). The great strength of the diagram is its abstractedness, its ability to bring a “pluridisciplinary perspective on the mechanism of assemblage” (ibid.: 28). He says:

Through abstraction, we can make assemblages between the social field and concepts, connecting across disciplines and heterogeneous elements of differing nature, bringing together previously unnoticed elements.

Ibid.: 35

Something has to be said about the dimension of time, that which animates the diagram (and hence actuality). As we have said, the frozen snapshots of diagrams on a page cannot convey the chronometric passage of time. DeLanda says:

Absolute lines of flight are components of this mechanism for the production of ideally continuous surfaces. But here we run into a difficulty. Any process of production must occur in time, that is, the series of events that compose the process must *actually occur*. The time in which assemblages are born, live, and die is the present time, and the present belongs to the actual world.

DeLanda 2016: 132

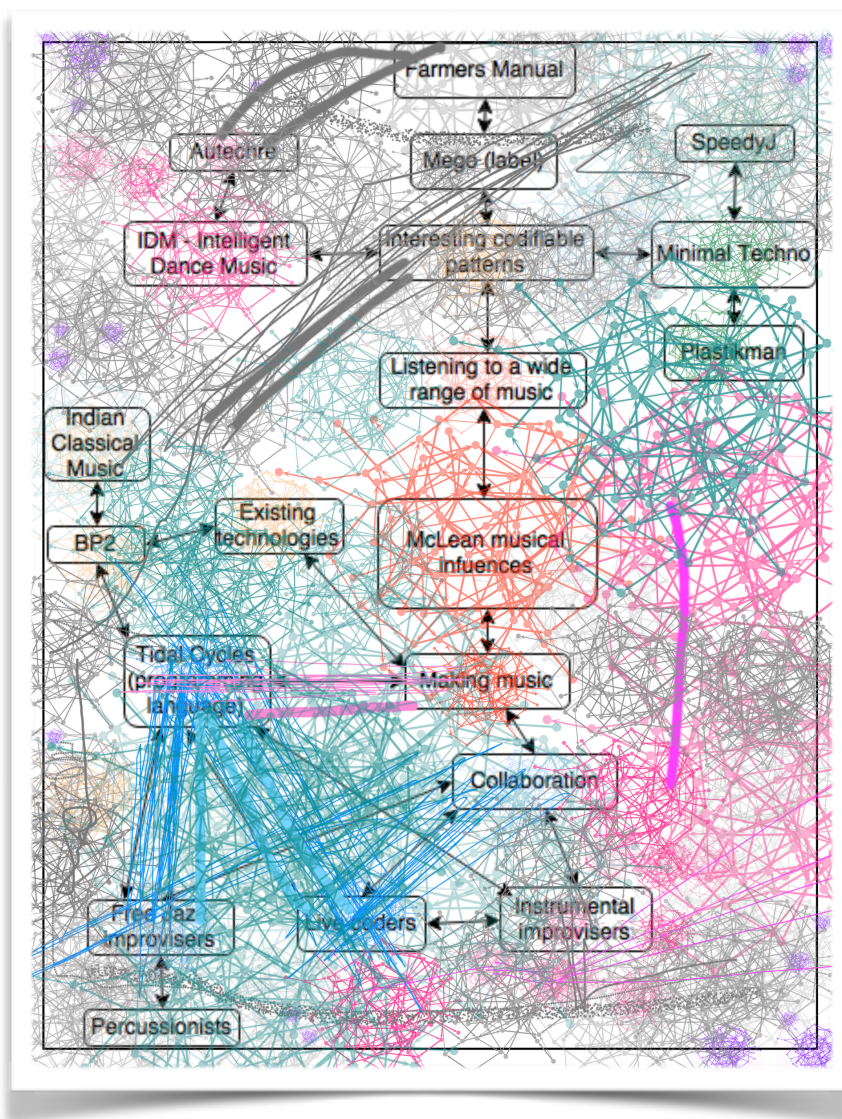
But perhaps all is not lost for the simple diagram. As DeLanda points out, just as lengths and areas are meaningless in topological depictions (such as the diagrams included here — they have no scalar vectors for axes), neither do they need a temporal scalar:

[...] A non-metric temporality would be one in which the notion of a stretch of time with a measurable duration is meaningless. Only singularities should be used to think about this virtual time: the minimum thinkable continuous time and the maximum thinkable continuous time; a present without





This may be seen as an idealised depiction of the abstract machines comprising the strata. The danger with such a diagram is that the observer may be lulled into forgetting that what is depicted is discriminatively chosen to render the information contained in it assimilable. But, it should be borne in mind that the reality of the situation is that the Whiteheadian feelings which emerge during the de- and reterritorialising encounters are far more fractally complex, halfway between this simplicity and the zone of indiscernibility where content and expression are indistinguishable (Zdebik 2012: 12). More like this (Fig. 19).



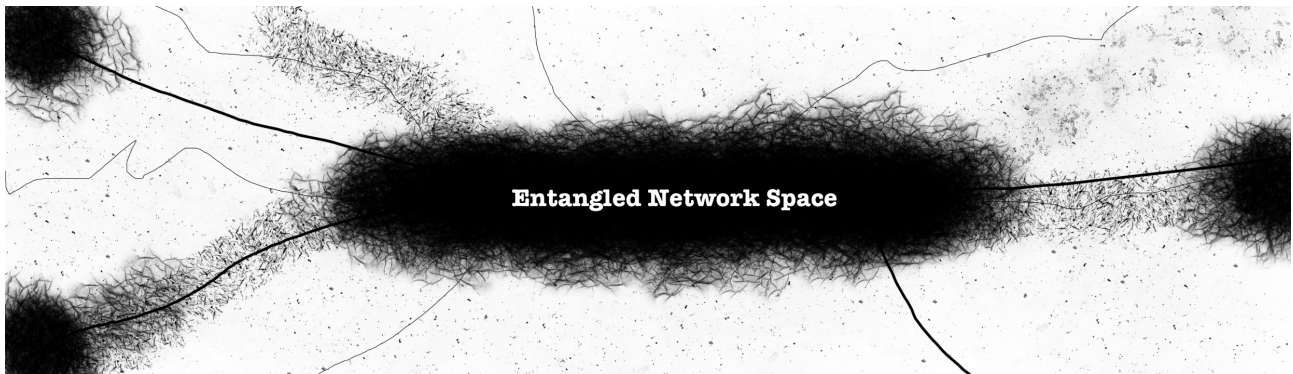
**Fig. 19 Assemblage of McLean's musical influences against the Whiteheadian background**



## Intermezzo IV



For description see pp. 229-233



—————> and... and... and... you arrive here on a line of flight...

## Entangled Network Space

### *Introduction*

What is Entangled Network Space? It is the one truly flat ontological space where being and non-being are equivalent. It is a space of infinite possibilities from which actualities condense and sublimate back into possibilities. It is the universal space<sup>28</sup>. It is the space of a symphony and the space of all possible symphonies. It is the space of influences on symphonies and of the influences of symphonies. It is the space of associations and dissociations. It is a space of works and of persons. It is the seething melting-pot of all that there is and was and might be.

I shall draw on the thoughts of a number of writers to justify this construction, but with particular reference to the assemblages of

- musical objects
- musickers
- technology

I shall show how these assemblages are inextricably and ineluctably linked. I shall adduce evidence from the four participants in the ethnographic vignette studies, where what they say has probative value toward these arguments. I shall build on Clark's (2003)

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<sup>28</sup> According to Vitale's "principle of immanence" the world may be seen to be "composed of one fundamental stuff, such that matter and energy, matter and mind, space and time, subject and object, are all aspects of emergence itself, that which gave rise to and continues to give rise to these" (2014: loc 785).

arguments that humans are cyborgs, and that, as a matter of degree, are becoming more so as time passes. I shall consider the Extended Mind Hypothesis of Clark and Chalmers (in Menary, ed. 2010) to show that the boundaries of the person are fuzzy and porous. I shall build on Derrida's (1979) discussion in *Parergon* of the boundaries of artworks, and show that they, too, are fuzzy and porous. I shall discuss Hodder's (2012) assertion that humans and things are sometimes inextricably entangled with each other heterochronically and diachronically. This will lead to a claim that the indeterminacies of person/cyborg interactions with technology and artworks (musical "works") are where the aesthetics of music lie. Further, because of the ever-increasing (exponential, according to Kurzweil 2005) growth of the prosopon/technology symbiosis, that this amounts to a new aesthetic (aesthetics, as discussed in the Rihizo-aesthetics chapter/abstract machine, being first-philosophy, therefore, formed anew all of the time).<sup>29</sup>

### *Assemblages in Entangled Network Space*

Firstly, it is necessary for some philosophical colours to be nailed to the mast. I quote at length Nussbaum:

1. The *ontological* thesis: pending future developments in basic science, nothing exists, including representational tokens themselves, that is not in some form of physical mass-energy falling under the principle of the conservation of energy (which is not to deny that complex physical systems may possess emergent properties, including intentionality and other mental properties, not present in simpler arrangements of mass-energy).
2. The *metaphysical* thesis: all existing entities are enmeshed in the causal order of the physical universe and as such fall under the counterfactual-supporting causal laws of the basic sciences of physics and chemistry, or the successors to such laws (which is not to make the reductivist claim that these laws are sufficient to explain satisfactorily the origins and behaviour of all complex emergent phenomena, including biological, mental, and social phenomena).
3. The *epistemological* thesis: all material descriptive knowledge claims must in principle be empirically testable, that is, evaluable before the tribunal of sensory experience, and that any such claim must cohere with (minimally be consistent with) evolving scientific theory (which is not to subscribe to a verificationist criterion of meaningfulness or to a falsificationist principle for demarcating science from nonscience; nor is it to deny that observation is theory laden and that

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<sup>29</sup> Networkological modes of description diagram the world in regard to a valuation of robustness, and only make sense from this perspective. [...] and network ethics, politics, aesthetics and more all flow from this, even as robustness is itself only an abstraction from networks in the world itself (Vitale 2014: loc 812).

some version of confirmation holism may be tenable; nor is it to insist that all scientific-theoretical entities at various levels of functional and structural abstraction be in principle observable).

Nussbaum 2007:3

Nussbaum's ontological thesis is commensurate with the Deleuzo-Guattarian claim about the immanence of the Plane of Consistency, i.e., it rules out the notion of the transcendent. By not ruling out emergent properties, he is consistent with Deleuze and Guattari, Whitehead, and other "connectionist" writers. The enmeshing of entities in "the causal order of the physical universe" is commensurate with the Deleuzo-Guattarian notions of stratification and de- and reterritorialisation, Latour's Actor Network Theory (2005), and Vitale's Networkological Project (2014).

It is worth spending some time exploring the notion of the assemblage, because it is crucial to the overall thesis. In *Dialogues II* (Deleuze and Parnet 2002: 69) Deleuze poses the question, "What is an assemblage?":

It is a multiplicity which is made up of many heterogeneous terms and which establishes liaisons, relations between them, across ages, sexes and reigns - different natures. Thus, the assemblage's only unity is that of a co-functioning: it is a symbiosis, a 'sympathy'. It is never filiations which are important, but alliances, alloys; these are not successions, lines of descent, but contagions, epidemics, the wind.

Quoted in DeLanda 2016: 1

DeLanda points out that this definition emphasises two aspects of the concept: "that the parts fitted together are not uniform either in nature or origin, and that the assemblage actively links these parts together by establishing relations between them" (ibid.: 2). Assemblages might be thought of as either real or virtual conglomerations (or some admixture of these). Livesey (in Parr 2010: 18) says, "The concept of assemblage, developed by Deleuze and Guattari, derives from the English translation of their concept in French of *agencement* (arrangement), or the processes of arranging, organising, and fitting together." This implies a dynamic processual activity. And so, "Assemblages, as conceived of by Deleuze and Guattari, are complex constellations of objects, bodies,

expressions, qualities, and territories that come together for varying periods of time to ideally create new ways of functioning” (ibid.).<sup>30</sup> DeLanda informs us that the English word is deficient insofar as it:

[f]ails to capture the meaning of the original *agencement*, a term that refers to the action of matching or fitting together a set of components (*agencer*), as well as to the result of such an action: an ensemble of parts that mesh together well.

DeLanda 2016: 1

We know of nothing which is not an assemblage, from the very smallest thing in nature to the very largest, notwithstanding temporal duration; from the fleeting emergence of an exotic sub-atomic particle in a particle-collider experiment, to the ancient light from the universe’s earliest stars (Drake 2018). Everything may be thought of as an assemblage of assemblages, therefore, “An assemblage transpires as a set of forces coalesces together, the concept of assemblages applies to all structures, from the behaviour patterns of an individual, the organisation of institutions, an arrangement of spaces, to the functioning of ecologies” (ibid.). DeLanda echoes this point. He says, “[...] a wide range of social entities, from persons to nation-states, will be treated as assemblages constructed through very specific historical processes, processes in which language plays an important but not a constitutive role” (DeLanda 2006: 3). As discussed in the Rhizo-aesthetics chapter/abstract machine, Whitehead also describes an ontology of processes rather than things. “[...] *how* an actual entity *becomes* constitutes *what* that actual entity *is* [...] Its ‘being’ is constituted by its ‘becoming’” (quoted in Shaviro 2014: 2).

Assemblages then are universal in application, and so must, perforce, apply to the habitus of the social. This, Latour tells us, is from the Latin root *socius* (2007: 5). Since music is but one aspect of the *socius*, the *musicus* in fact, when Latour says, “[...] by redefining sociology not as ‘the science of the social’ but as the *tracing of associations*” (ibid.), we may allow that music may also be defined by such a tracing.

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<sup>30</sup> Previously quoted at p 7., but included here in a different context.

Latour counsels us against any advance limitation of the “sort of beings populating the social world” (ibid., 16). Such a reductionist division of the social domain (including music) into a “list of actors, methods, and domains already taken as members of the social realm [...]” (ibid.) would be circular. Instead, he says that the socius should be considered as types of controversy (ibid.). This does have the ring of dynamism which Deleuze and Guattari say is constitutive of the assemblage. Colebrook (in Parr ed. 2010) says that, “actuality is *unfolded* from potentiality” (ibid.: 9). She says:

First, there are deemed to be actual terms, terms that are extended in time – having continuity – and possibly also extended in space. These terms are then related to each other, so difference is something possible for an already actualised entity.

Ibid.: 9

It is also possible for the imminently unactualised, or *virtual* to have a role to play in difference, and so to be actively involved in dynamic relationships with assemblages. “An assemblage’s diagram captures this virtuality, the *structure of the possibility space* associated with an assemblage’s dispositions” (DeLanda 2016: 5).

Perhaps the resolution to Latour’s controversy lies in the nature of the way in which assemblages are networked. Vitale states:

At its simplest, a network is any whole, composed of parts, distinguished from a background, and composed of other parts and wholes, layered into each other at multiple levels of scale. Anything which can be thought of in this way can be seen as a network, which is a general way of thinking about how things intertwine, interact, and hold together.

Vitale 2014: loc 293

“Assemblages emerge from the arranging of heterogeneous elements into a productive (or machinic) entity that can be diagrammed, at least temporarily”<sup>31</sup> (Livesey 2010 in Parr ed.: 16).

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<sup>31</sup> The network diagrams produced below in my analysis of the vignette subjects are such “temporal” diagrams. Snapshots of a moment which do not capture the dynamic nature of the processes involved.

The notion of the Deleuzian diagram is akin to Vitale's network diagrams.<sup>32</sup> The qualification of temporality reinforces the dynamic nature of the processes. When this dynamism is in play, the diagram maps territories, so "[t]he territorial aspects of assemblages deals with those forces that unmake and make territories, what Deleuze and Guattari define as deterritorialisation and reterritorialisation" (ibid.: 17). Vitale calls these same processes "reification" and "dereification or dissolution" (2014: loc 604). An assemblage, then:

[e]merges when a function<sup>33</sup> emerges; ideally it is innovative and productive. The result of a productive assemblage is a new means of expression, a new territorial/spatial organisation, a new institution, a new behaviour, or a new realisation. The assemblage is destined to produce a new reality, by making numerous, often unexpected, connections.

Ibid.: 18

Vitale (and Small, 1998) warns of the dangers (and necessity) of reification:

The temporary solidification of processes which gives rise to particular nodes, links, grounds, and levels is what many discourses have called a form of reification, a term which literally means "thing-ification" (from the Latin word *res*, for "thing"). Reification is necessary to produce and maintain networks, even if it can come to dominate, paralyze, and stultify their ability to grow and change when taken to extremes.

Vitale 2014: loc 329

This is a futile worry, since in Entangled Network Space, dynamism reigns supreme. The only true reification would come with the heat-death of the universe, when entropic processes were played out. Sometimes, a state of affairs pertains which appears to be, more or less, static. Geological time appears frozen to us. But slow changes occur, even planets are formed and disintegrate. As Hodder (2012 and 2014) points out, over evolutionary timescales humans and things have become more and more entangled with each other, entanglements which might not manifest themselves day by day, but which the long lens of time's passage reveals to us. He says, "Ever since the first tool and the first

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<sup>32</sup> "[...] the network diagram, a concept composed of the sub-concepts, or elements, of node, link, ground, and level, all of which are abstractions from the networks which manifest in the world" (Vitale 2014: loc 314).

<sup>33</sup> This is important, if function is considered in its verbal sense. The arrows (<————>) linking nodes in the network diagrams below represent this functional activity. They are the epistemological practices which *define* the ontology of the nodes. They are the "feelings" or prehensions of Whitehead's ontology.

fire, ever since we took the path of being dependent on things, we have been caught up in their lives” (2014: 33). He goes on to say:

Since a dependence on made things became an evolutionary pathway, there has been one long movement, initially slow, but speeding up exponentially as the strands of human-thing entanglement lengthened and intensified. [...] [A]s humans we are involved in a dance with things that cannot be stopped, since we are only human through things.

Ibid.: 33-34

DeLanda modifies the original Deleuzo-Guattarian model by conceiving of the components of assemblages being themselves assemblages, a finer-grained ontology<sup>34</sup> (DeLanda 2016: 7):

It also yields a view of reality in which assemblages are everywhere, multiplying in every direction, some more viscous and changing at slower speeds, some more fluid and impermanent, coming into being as fast as they disappear. And at the limit, at the critical threshold when the diagrams of assemblages reach escape velocity, we find the grand cosmic assemblage, the plane of immanence, consistency, or exteriority.

Ibid.

This is a world which Latour describes as one of “proliferating hybrids” (quoted in Shaviro 2014: 11). It is a world, according to Latour, which “traces the power struggles and negotiations of nonhuman as well as human actants” (ibid.). And we shall see later under the discussion of the Extended Mind Hypothesis, that the human nonhuman dichotomy is an arguable one. Vitale makes this point, which reinforces Hodder’s view of non-static assemblages and Deleuzo-Guattarian de- and reterritorialisation:

The networkological project views all networks, even if they appear static, as ultimately dynamic at lower levels of scale<sup>35</sup>, for they intertwine processes and reifications in ways which give rise to relatively stable networks, each of which is always a pattern of balance, state, or symmetry between change and stasis.

Vitale 2014: loc 592

As discussed in the ~~For~~emachine and Rhizo-aesthetic ~~chapters~~/abstract machines, aesthetics may be considered as first philosophy. Vitale uses the metaphor of currencies

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<sup>34</sup> Of course, in the limit of fine-grainedness, the ontology becomes flat.

<sup>35</sup> Or over long diachronic timescales.



and exchange values to describe the way assemblages interact. The exchanges which occur in de- and reterritorialisation can give rise to meaning:

Economies do not only produce and express values, but also meanings. Meanings are the solidification and expression of values, which are themselves solidifications of processes of valuation, into patterns that can lead to interpretations of particular aspects of a system or its contexts in regard to those contexts. [...] The meaning of any particular aspect of the world can then be seen as its position in relation to the patterns at work in the things, qualities, modes of relating, and actions and processes involved, even as each is in turn an expression of the values of the systems which produced these. [...] This is because humans have more potential systems of valuation at their disposal, which can then be used to select various ways of interpreting experiences, thereby giving rise to meanings.

Ibid.: loc 890

So far as cultural aesthetic meanings are concerned, Vitale's general point is true. We are always already *in media res* regarding meaning:

Each experienter in the world always already finds itself in a world full of meanings and values, which arise because of the processes and contexts which gave rise to these experiencers in the first place. We always experience a world full of meanings and values, a world carved into slices which demand our attention and interpretation in regard to our needs and desires, our investment of currencies in regard to how we read the potentials for action around us.

Ibid.: loc 940

Meanings are created by the processes of becoming which the exchanges of "capital" facilitate. Shaviro's commentary on Whitehead emphasises the importance of creativity. Whitehead, he says, calls this "the universal of universals":

This means that the world is never static, never closed, never completed. Each process of becoming gives rise to *novelty*: it produces something new and unique, something that has never existed before. Things do not "persist in being" (the definition of Spinoza's *conatus*) so much as they continually alter and transform themselves, exhibiting "a certain originality [...] originality of response to stimulus."

Shaviro 2014: 4

Shaviro's commentary on the ontologies of Harman and Whitehead sees them describing the way "objects" manifest themselves like this, "Where Harman sees "countless tiny vacuums" separating objects from one another (Harman 2005: 82), Whitehead sees the universe as a finely articulated plenum" (Shaviro 2014: 39). On this reading, Whitehead is describing something akin to the Deleuzo-Guattarian Plane of Immanence

(an ontology of plenitude), a metaphysical space pregnant with possibilities. Shaviro points out that in Whitehead's philosophy, what keeps entities distinct from one another (albeit temporarily) despite their continual interpenetration is, "precisely their disparate manners, or their modes of *decision* and *selection*" (Shaviro 2014: 39). A "decision" is used by Whitehead in its original etymological sense of "cutting off". So it becomes "an act of *selection*, consisting in processes of choosing, adding, subtracting, relating, juxtaposing, tweaking, and recombining. This is the only way to account for novelty without appealing to anything that "floats into the world from nowhere" (ibid.), some transcendental realm. Everything required for transformation is at hand and so there is "no need to appeal to vast reserves of hidden qualities" (ibid.). The facts of the world, then, arise directly from the entities which emerge from Whitehead's conjunctive decision-processes. Of course, "decision" here does not imply an act of conscious volition, in the usual sense of decide. It applies, equally, to the manifestation of e.g., the quantum properties of "fundamental" particles or the disposition of a copper ion to make chemical bonds, to events of cosmic proportions such as the future collision between the Milky Way and Andromeda galaxies through gravitational attraction. Something new is created, according to Shaviro:

each time that a decision is made to do things *this* way rather than *that* way or to put *this* together with *that* while leaving something else aside. Every such act is a new creation: something that has never happened before.

Ibid.: 39-40

Whitehead's insistence on decision and selection, according to Shaviro, allows him to answer James's call for a philosophy that "does full justice to conjunctive relations"<sup>36</sup> (ibid.: 40). So, Whitehead satisfies James's demand and also prefigures Deleuze and Guattari

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<sup>36</sup> James, W. 1912/1996. *Essays in Radical Empiricism*. Lincoln: University of Nebraska Press

when they write of the “constant conjunction<sup>37</sup>, and... and... and...” (Deleuze and Guattari 1987: *passim*).

DeLanda talks about the relations between components of assemblages. He uses the expression, “relations of exteriority” (DeLanda 2016: 10):

Unlike wholes in which ‘being part of this whole’ is a defining characteristic of the parts, that is, wholes in which the parts cannot subsist independently of the relations they have with each other (relations of interiority), we need to conceive of emergent wholes in which the parts retain their autonomy, so that they can be detached from one whole and plugged into another one, entering into new interactions.

Ibid.

These two concepts of *emergence* and *exteriority* enable us to define social wholes (ibid.). DeLanda reminds us that the term “exteriority” in its usual connotation implies a spatial relation. This is not always the case. The space may also be metaphorical. He also says that among the properties that can be ascribed to the network as a whole is “the *density* of its connections” (ibid.). This is true, but is only part of the spatial relationship. Just as important as density is the *weight*<sup>38</sup> of the connections. The weights of the connections are equally as important as the number of connections in emergent meaning. Whitehead says of these connections, “every actual entity is present in every other actual entity” (quoted in Shaviro 2014: 54):

In the movement of allure, the web of meaning is ruptured as the thing emerges violently from its context; but in the movement of metamorphosis, the web of meaning is multiplied and extended, echoes and distorted, and propagated to infinity as the thing loses itself in the network of its own ramifying traces.

Ibid.

This describes the de- and reterritorialisations of Deleuze and Guattari, the density of DeLanda's connections and the importance of the weightings I describe. All of these have

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<sup>37</sup> Schaeffer writes: “The only possible introduction of language into music is that of conjunctions,” encouraging us to spot all the but-or-and-hence-so-neither-since’s throughout a musical piece. (Quoted in Nancy 2007: 34) James tells us that, “Nancy’s philosophy aims to develop an ontology, to think being as coexistence and as a singular plural ‘being with’” (James 2012: 40). This is a conjunctive philosophy.

<sup>38</sup> Analogous to the weights of connections in a neural network. See also the discussion of rich clubs networks in the Rhizo-aesthetics chapter/abstract machine.

pertinence to the way Toynbee describes entities like, e.g., the “social author” (Toynbee 2000: Ch. 2, 34-67). When a thing “loses itself in the networks of its own ramifying traces” this is precisely analogous to Toynbee’s “event horizon”. Whitehead’s description of this constitutive ontology also prefigures Derrida’s difference (1997 *passim*). For Whitehead, “things both differentiate themselves absolutely from one another and refer themselves incessantly to one another” (quoted in Shaviro 2014: 59). This is a kind of reflexive-being. “The terror of interconnection is a kind of inverse, like a photographic negative of the “satisfaction” with which an entity uniquely constitutes itself into a completely determinate matter of fact” (ibid.: 59-60):

This double assertion corresponds to the way that all entities perform a double movement of allure and metamorphosis, of bursting forth and slipping away, of displaying their absolute singularity and retreating into a maze of references and transformations.

Ibid.: 60

The immanent plane is then a space of limitless possibilities:

And there is no way to predict how these reflexive beings-in-the-world will play out. Allowing the possibility of complex interactions between component parts is crucial to define mechanisms of emergence, but this possibility disappears if the parts are fused together into a seamless web. Thus, what needs to be challenged is the very idea of relations of interiority. We can distinguish, for example, the properties defining a given entity from its *capacities to interact* with other entities. While its properties are given and may be denumerable as a closed list, its capacities are not given - they may go unexercised if no entity suitable for interaction is around<sup>39</sup> - and form a potentially open list, since there is no way to tell in advance in what way a given entity may affect or be affected by innumerable other entities.

DeLanda 2006: 10

Nancy’s ontology has echoes with this way of thinking. James, commenting on Nancy, says:

Nancy is trying to think sense as a horizon of shared meaningfulness to which bodies are *exposed* in their apprehension<sup>40</sup> or perception of a world and in the interaction of bodies with the world and with each other: their touching, their contact, their mutual spacing and crossing. In this context the co-articulation of sense and bodies is always ‘toward’ rather than an ‘in’.

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<sup>39</sup> For example a field of Copper ions (Cu++) in the absence of negative ions to form bonds. Or perhaps the encoded subsurface of a compact disc in the absence of a laser beam to read it.

<sup>40</sup> Or, in Whiteheadian terms, simple prehension.

This “motion toward” of Nancy’s ontology supports the dynamic nature of Entangled Network Space, which is never static. And Nancy also supports the immanence of the world. He says, “Thus *world* is not merely the correlative of *sense*; it is structured as *sense* and reciprocally, *sense* is structured as *world*” (Nancy 1993a: 17-18; 1997e: 7-8; quoted in James 2012a: 43). There is, says James, a kind of aporesis in this ontology, because:

[it] is paradoxical ontology, insofar as being (envisioned as being-with<sup>41</sup>) always escapes the conceptual or figural grasp of ontological disclosure. It exceeds any and all possible reductions to the identity or limits of a *logos*. This is the kind of paradoxical or aporetic logic with which readers of much twentieth-century French thought will be familiar.

Ibid.: 47

But this criticism is only valid to holders of an analytical, reductionist doxa. On the contrary, there is salvation and sense to be had from Nancy’s ontology. James’s commentary is valid when he says, “It is infinitely refractory, infinitely plural and is so only in the multiplicity of singular bodies which are exposed to sense”<sup>42</sup> (ibid.). Nancy’s worldview is entirely compatible with Entangled Network Space. This remark emphasises the fundamental nature of connectedness and dynamism, “The individual is an intersection of singularities, the discrete exposition of their simultaneity, an exposition that is both discrete and transitory” (Nancy 1996a: 109; 2000c: 85; quoted in ibid.: 48). A case of *e pluribus unum* (from many, one) and its converse *ex uno plures* (from one, many), the always already reciprocal.

Emergence is a critical property of assemblages. DeLanda gives two compelling reasons to include it as part of the definition of the term ‘assemblage’:

First of all, without something ensuring the irreducibility of an assemblage, the concept would not be able to replace that of a seamless totality. If the parts of a whole are reducible, then they form an aggregate in which the components merely coexist without generating a new entity. Hence, irreducibility is implicit in the concept of assemblage. Second, making the properties of a whole depend on the interactions between its parts ensures that those properties are not taken to be *either*

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<sup>41</sup> In the connected, networked sense of “being-with”.

<sup>42</sup> Whiteheadian “prehension”.

*necessary or transcendent*. When the properties of a given whole are taken as a brute fact, and listed as the unexplained characteristics that the whole must possess in order to be an entity of a given kind, the list of necessary properties swiftly becomes an *essence*. Essences belong to a different plane of being from the entities whose identity they define, a transcendent plane overlying that which the entities populate<sup>43</sup>. But if the properties are viewed as *produced* by the interactions between components, and their existence and endurance explained by the continuity of those interactions, then the properties are *contingent*: if the interactions cease to take place the emergent properties cease to exist.

DeLanda 2016: 12

So emergence means that wholes (which includes social wholes in the realm of musicking) exist alongside their parts, peripherally to them. Again, it is important to emphasise that this reference is “not spatial but *ontological*: the whole exists alongside the parts in the same ontological plane. In other words the whole is immanent, not transcendent” (ibid: 12-13). And, as we saw above, in the Rhizo-aesthetics chapter/ abstract machine, since an assemblage’s network diagram also encompasses the possibly space in which it “sits,” the ontological plane which DeLanda describes is immanent and flat. Refuting “traditional philosophies” DeLanda says this concerning the immanent plane:

If we use the variable ‘n’ for number of dimensions, transcendent formal or divine causes tend to operate in a space with n+1 dimensions. But as Deleuze and Guattari argue, the diagram of an assemblage ‘however many dimensions it may have ... never has a supplementary dimension to that which transpires upon it. This alone makes it natural and immanent’.<sup>44</sup>

Ibid.: 116

As DeLanda said in an earlier work (2006):

The identity of an assemblage at any level of scale is always the product of a process (territorialization and, in some cases, coding) and it is always precarious, since other processes (deterritorialization and decoding) can destabilize it. For this reason, the ontological status of assemblages, large or small<sup>45</sup>, is always that of unique, singular individuals. In other words, unlike taxonomic essentialism in which genus, species and individual are separate ontological categories, the ontology of assemblages is flat since it contains nothing but differently scaled *individual singularities* (or *hacceities* (sic.)).<sup>46</sup>

DeLanda 2006: 28

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<sup>43</sup> A Platonic realm which assemblage theory eschews.

<sup>44</sup> Deleuze and Guattari 2006: 266

<sup>45</sup> We might add, temporally short or long, too.

<sup>46</sup> Which echoes Vitale’s (2014 op. cit.) description of fractal holographies.

This is a good state of affairs, since, as DeLanda points out, “Having discarded seamless totalities and transcendent essences, we can now return to the questions of human history” (DeLanda 2016:13). Musicological explanations are inevitably shaped by the ontological commitments of the musicologists who frame them. So it would be good to get the ontological commitments right. What is needed is “a plausible model of the subject which meets the constraints of assemblage theory, that is, a model in which the subject emerges as relations of exteriority are established among the contents of experience” (DeLanda 2006: 47). Which is another way of saying an ontology which is supervenient upon epistemology. We need, as Latour says, “to cast off agency, structure, psyche, time, and space along with every other philosophical and anthropological category, no matter how deeply rooted in common sense they may appear to be” (Latour 2005: 24-25).

### *Assemblages in the vignettes*

In the light of the theoretical discussion of assemblages, let us consider how assemblages manifest themselves in the work and practice of the vignette participants. Sometimes a picture paints a thousand words. Since a fundamental aspect of the description of assemblages is a consideration of their network diagrams, I shall map some examples of aspects of the vignette subjects-as-assemblage. These diagrams, which are arbitrarily bounded, are sub-optimal representations of assemblages in Entangled Network Space, but, for the time being, they are as good as they can be within the constraints of representations on a word-processed printed page. They are what Tomlinson calls “snapshots [...] ‘stills,’ to be sure, but still composed so as to give a sense of the motion they freeze” (Tomlinson 2015: 26). I have reproduced several of such “snapshots” elsewhere in this ~~dissertation~~-assemblage. I refer the reader to the rhizo-analytical diagrams of the vignettes’ participants material in the Vignettes ~~chapter~~/abstract machine.

## *The metaphysical space*

Are these Deleuzo-Guattarian spatial descriptions justifiable, or are they, as Scruton counsels, foolish and fraudulent, pumped up with so much “hot air” (Scruton 2015: 174)? Is there anything more to the intellectual method of Deleuze and Guattari than mere “packaging” (ibid.: 189)? Scruton says, “Emerging from the Deleuzian nonsense machine is a ‘new’ academic style, which has syntax without semantics” (ibid.: 195). Even supporters acknowledge that in *A Thousand Plateaus* (Deleuze and Guattari 1987), “Its terminology is abstruse and difficult to engage with and the presentation of its argument so long and convoluted it tends to get lost in the exfoliation of the concepts themselves” (Buchanan and Swiboda, eds. 2004: 1). But, language aside, is there something in the *thinking*, the actual *ideas* behind the Deleuzian rhizome which warrants examination?

Babich has said that it is the role of Continental philosophy to make explanations more complex, not less so (2012: personal correspondence). What follows is a Deleuzian exegesis of an aspect of the vignette responses, in order to see whether an untangling of Deleuze’s convolutions and Babich’s complexity can lead to what the physicist David Deutsch would call “good explanations” (Deutsch 2011: vii).

## *Toynbee’s ‘Social Author’*

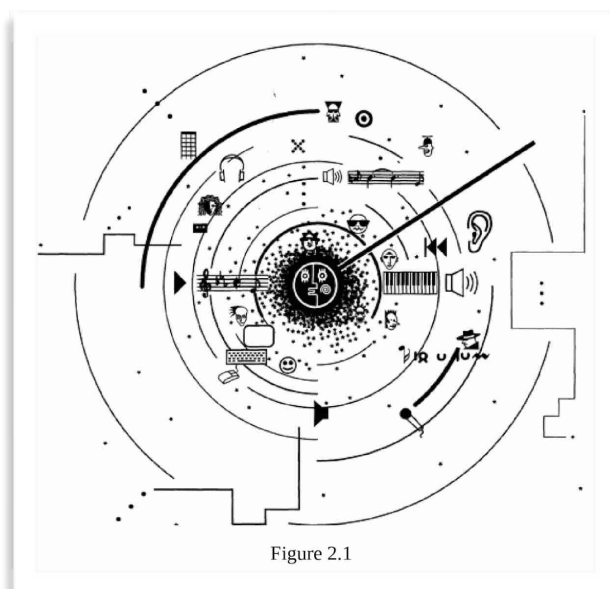


Fig. 20 Toynbee’s “Radius of Creativity (2000: 41).”

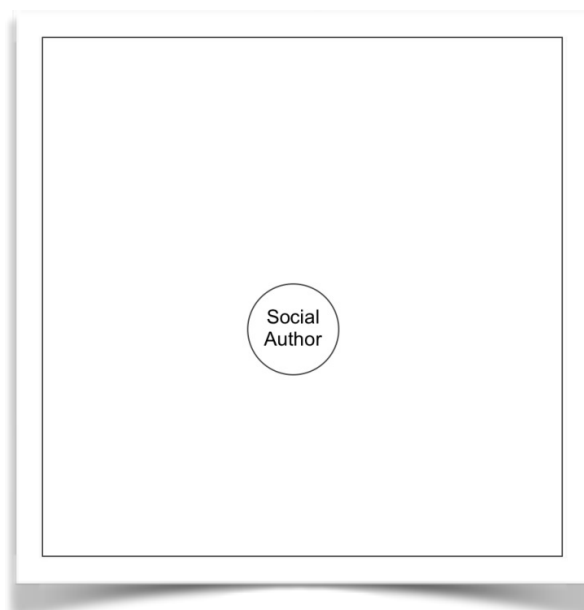


Toynbee's 'Social Author' (2000) develops the concepts of 'habitus' and 'field' described by Bourdieu (quoted in Toynbee 2000: 36-37). He describes the position of a creative person (the Social Author, be she writer or musician) at the centre of a Bourdieuan 'field'. This is a field of 'possibilities' (Fig. 20). The diagrams below (Figs. 21, 22, and 23) do not appear in Toynbee's text. I have drawn them as pictorial descriptors of his text. They are, in effect, subsets of Toynbee's own diagram, the musician in a social field (Fig. 20). The 'habitus' of the Social Author is her pre-existing disposition to make particular choices within the 'field'. Toynbee says that he wishes to, "[a]ssemble a general model — the radius of creativity — which can be applied to all sorts of popular music-making and perhaps the production of culture more generally" (see Figure 20) (ibid.: 40).

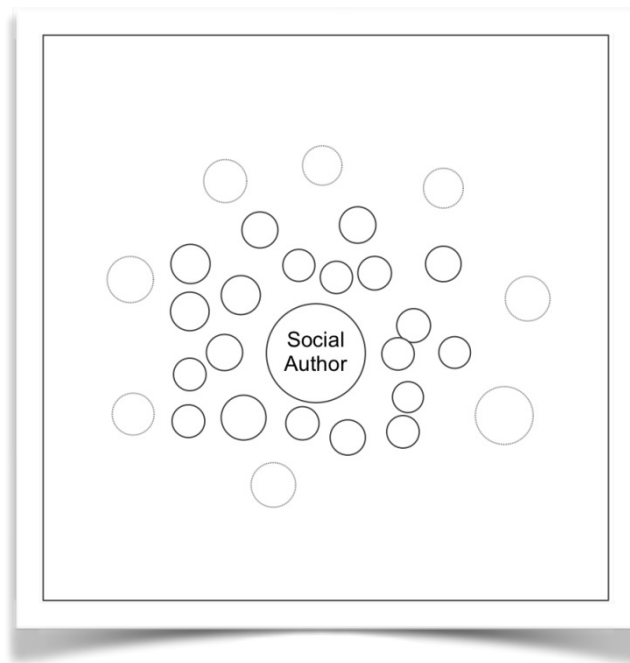
I quote Toynbee at length here, because it is a good description of the way weighted connections occur in the production of assemblages in the rhizome:

Creative space may be envisaged as circular. At the centre is the music maker, sometimes a single subject, sometimes a collective actor. The radius of creativity extends from the centre to an ill-defined circumference. Within the circumference are distributed creative possibles. The further along the radius one moves from the centre, the thinner the distribution of these possibles. Beyond the circumference is an area of impossibility, that is to say a domain where possibles cannot be heard.

Ibid.



**Fig. 21 Toynbee's "social author" located in a possibility space**

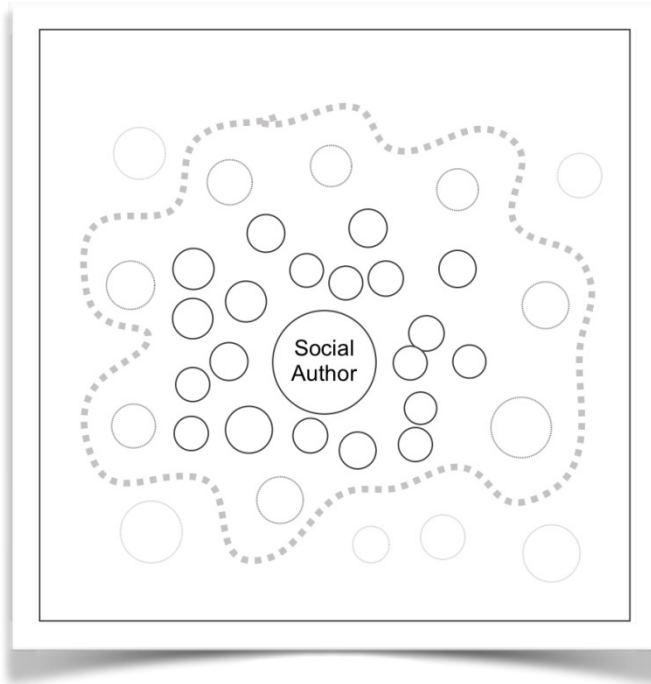


**Fig. 22 Social author surrounded by “coded voices” (Toynbee 2000: 37 *et seq.*)**

Rhizomatic space is not Cartesian. No place is privileged over any other. In Figure 21, Toynbee’s Social Author is located in Bourdieu’s rhizomatic ‘possibility-space’.

In Figure 22, the Social Author is surrounded by:

[d]ensely distributed dots<sup>47</sup> [...] represent[ing] those regularly selected choices required for the competent production of a text in a given genre. Moving out [...] an increasingly thin distribution of



**Fig. 23 Toynbee’s social author in a field demarcated by a possibility horizon (Toynbee 2000: 40)**

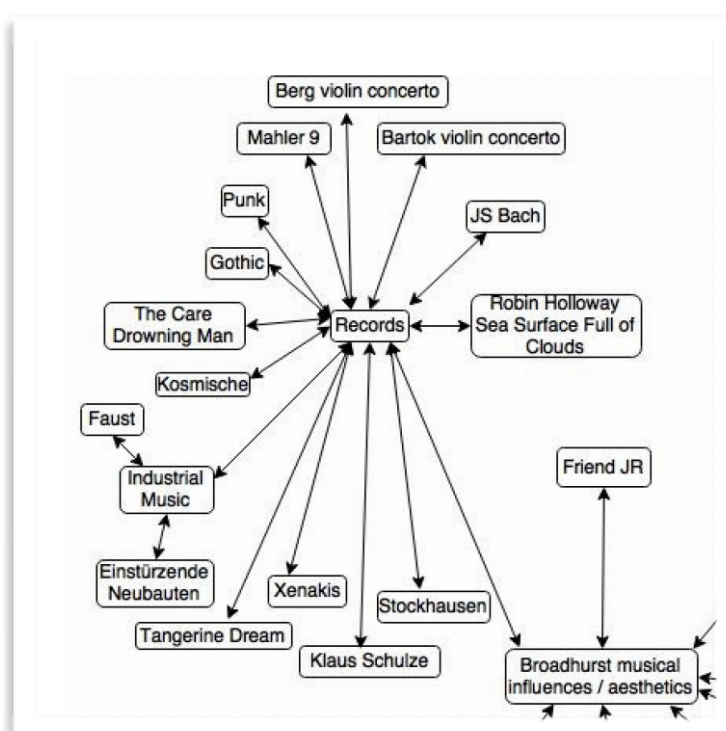
<sup>47</sup> The darker circles in Fig. 22

dots<sup>48</sup> indicates not only the increasing difficulty of making choices beyond the datum of genre, but also a larger and larger space of possibilities.

Ibid.: 107

Deleuze would call these dots territories on a stratum within the rhizomatic space.

“Eventually [there is] a fuzzy perimeter or virtual horizon of possibility<sup>49</sup> beyond which the author cannot identify any coded voices at all” (ibid.). But there are “coded voices” beyond the perimeter.<sup>50</sup> It was Wittgenstein who said, “for in order to be able to draw a limit to thought, we should have to find both sides of the limit thinkable (i.e., we should have to be able to think what cannot be thought)” (Wittgenstein 1974: 3). It is that metaphysical fact which means that the totality of rhizomatic space is limitless. Let us consider a sub-assemblage from the Broadhurst diagram (Figure 30 in the Vignettes chapter/abstract machine). One of the aspects described by Broadhurst and diagrammed was the influence of records on his musical oeuvre.



**Fig. 24 Broadhurst: records as musical influences**

<sup>48</sup> The lighter circles in Fig. 22

<sup>49</sup> The hatched line in Fig. 23

<sup>50</sup> The light grey circles outside the hatched line in Fig. 23

Figure 24 details the sub-assemblage which diagrams Broadhurst's vignette responses concerning the influences of records as musical influences on his musical practice and oeuvre. It is a similar structure to generic space diagram shown above in Figure 22.

It is evident from a consideration of Whitehead's philosophical position, especially when considered in conjunction with Deleuze, that there is always already a state of entanglement which is present in the ontological manifestation of the epistemological encounter. In the Rhizo-aesthetics chapter/abstract machine, I considered the scale and temporal bounds of such encounters. It is the constant de- and reterritorialising of the Deleuzo-Guattarian "becoming-" where entanglements arise. As we have seen in the case of Toynbee's description of the Bourdieuan field (which is a proxy for the Deleuzian plane of immanence), even beyond the (fuzzy) event horizon, there are always already more possibilities, more potential becoming(-x, -y, -z)s, more potential entanglements. As a metaphor for entanglement, what better than the spider's web? Pointing out that Latour became dissatisfied with the term "network" (In Actor Network Theory), Hodder says:

Latour argues that indeed the idea of network has lost its critical valency because of the emphasis on information exchange and networks of global interaction in the World Wide Web. He suggests that in ANT "network" originally meant transformations and translations. It referred to the complexities of linkages that made things related beyond their supposed existence as stable regional entities. In Spanish "network" is translated as *red* and in French as *réseau*, both of which have the connotations of web or mesh. Tim Ingold suggests that such terms give a better sense of rhizomic flows than does the term "network." The spider's web is an extension of the spider and makes possible the life of the spider.

Hodder 2014: 24

Increasingly, the environment becomes more and more entangled in the web of human activity:

The increased rate and entrapment of entanglement may also be a product of the gradual decrease in the "external" environment. Over the course of human evolution, the expansion of entanglements has meant that all aspects of the environment have become human artifacts. There is less and less outside the human that can "take care of itself." The whole environment (in the Anthropocene) is itself

an artifact needing care, fixing, and manipulation. There is more potential for unpredictable change and human response within complex unbounded artificial systems.

Ibid.: 33

Having talked about entanglements, it is necessary to consider the boundaries of and between things — that which might be subject to entanglement.

### *Boundaries in Entangled Network Space*

Earlier, when discussing Toynbee's social author, I quoted Wittgenstein's remark from the *Tractatus*, "[...] in order to be able to draw a limit to thought, we should have to find both sides of the limit thinkable" (1974: 3). An irresolvable contradiction which demonstrates clearly that some boundary conditions cannot be defined. We might say that what Wittgenstein identifies here *is* a boundary which lies at infinity, or as close to infinity as makes no difference, beyond which lies "nonsense" (ibid.). But, surely, there are real, finite, identifiable boundaries. Take the square defined by the lines joining the Cartesian coordinates (0,0), (0,1), (1,0), and (1,1). In this Euclidean plane, there are clearly points which lie within the square, e.g., (0.5,0.5), and there are points which are outside the square, e.g., (3,5). But even on the Platonic lines which make up the square, what is the status of a point such as (0,0.5)? It lies on the square: is it in or is it out? In the real (non-Platonic) world, boundaries tend to be much fuzzier. Consider a square agricultural field, bounded by a hedge. Is it always possible to say exactly where the hedge starts and stops? Now musicians and those who listen to music, and musical works and performances are most definitely things in the real world. It may seem strange to ask about the boundaries of musical works and musicians and musical auditors, but if we cannot identify such boundaries, how can we say in what those things consist?

"Jazz stands for freedom. It's supposed to be the voice of freedom: Get out there and improvise, and take chances, and don't be a perfectionist - leave that to the classical musicians" (Brubeck: attrib.). Ah, freedom! The implication is that the jazz improviser is a

free agent in the production of the sonic object. But is she? Here is the Oxford English Dictionary's definition of an agent:

OED: agent, *n.*<sup>1</sup> (and *adj.*)

**a.** A person who or thing which **acts upon** someone or something; one who or that which exerts power; the **doer of** an action. Sometimes contrasted with the *patient* (*instrument*, etc.) undergoing the action.

**b.** A person or thing that **operates in** a particular direction, or **produces** a specified effect; the **cause of** some process or change. Freq. with *for*, *in*, *of*

Oxford English Dictionary (my emphases)

The words in bold type indicate the active nature of what it means to be an agent, and it is in these senses that I consider agency and agents in terms of music and its production. Consider an improvising musician, a clarinettist. She plays her clarinet into a microphone connected to a computer which modifies and modulates the instrument's sound, outputting the result through loudspeakers. Listening to the clarinet sound together with the loudspeakers' sound, the effect is that of a musician playing a duet with a machine.

Malfouris (in Knappet and Malfouris 2008) considers the act of throwing a clay pot on a wheel. What do the acts of throwing a pot and the clarinet performance have in common? Malfouris introduces us to the notion of *material agency*. He says:

If human agency *is* then material agency *is*, there is no way that human and material agency can be disentangled. Or else, *while agency and intentionality may not be properties of things, they are not properties of humans either: they are the properties of material engagement, that is, of the grey zone where brain, body and culture conflate.*

Ibid.: 22. Italics in original

The place to look for material agency, according to Malfouris, is in between, rather than within, persons and things. It is, Bown says, "a view which removes the privilege of the human actor, making place for the idea of humans and other actors forming temporary networks of interaction that produce things" (2015: 21).

But just where is the "in between" of which Malfouris speaks? In between what? How do we explore in the grey zone, this zone of entanglement between things? And are

“things” as distinct as we usually suppose? Kosko also uses the metaphor of greyness. He says, “At the core is the paradigm shift from the black and white to the gray – from bivalence to multivalence” (Kosko 1994: xvi). It would seem from our everyday experience that it is a trivial matter to distinguish between our player, her instrument, the computer system, and the music that emerges. After all, over evolutionary time, human beings have become rather adept at telling things apart. If our ancestors had not been able to tell a tiger from a tree, we wouldn’t be here today to philosophise on the matter. But is it so easy? Is our familiarity with the discreteness of things in our environment a little illusory? Does our phenomenological perception of the world reveal the world as it really is? Do our tiger *Gestalten* paint the whole picture? I will suggest that, in some respects, the boundaries between apparently discrete objects, which include us as persons, are actually far more porous and fuzzy than we would ordinarily think and that, in some cases, the very notion of a boundary becomes meaningless.

It is here that the traditional analytic philosophical concentration on hierarchical ontologies doesn’t really help us too much. A very great deal of the philosophical writing in musical ontologies is from that tradition, by writers who often take a reductionist approach. But such an approach seems quite far removed from our everyday experience of music. It is as if the musico-philosophical search for the fundamentals of what makes music tick, music at a molecular level, will lead, grail-like to an all-encompassing explication of music’s place in the world and its effects on us. These analytic discourses concentrate on molecular issues; binary debates about types and tokens, Platonic eternal works, and so on.

This seems to be an entrenched position, which stems from positions like metaontological realism which is avowedly against any kind of local descriptivism, especially in consideration of the ontology of artworks. Dodd is a realist and an upholder of folk-theoretic modesty. He says:



According to the metaontological realist in the ontology of art, the correct answers to first-order art ontological questions—questions concerning the respective ontological categories the various artwork kinds belong to, their identity conditions, their persistence conditions, and so on—are objective (i.e., mind-independent) in the following sense: their correctness is in no way determined by what we say or think about these questions.

Dodd 2013: 1048

Dodd goes on to say, “With such metaontological realism in place, folk-theoretic modesty swiftly follows” (ibid.). But does it follow a little too quickly? There is already a hierarchical assumption being made in putting the question in this way, i.e., in saying that it is first-order ontological questions which need addressing here. But what are these first-order questions? I think that they tell us only about the “molecular” aspects of music; pitch, duration, timbral qualities and so on; interesting, but not really getting under the skin of music *qua* music. Contrast this position with that of a descriptivist, who will claim that the facts about the ontological nature of artworks can be read off from how our practice of authoring, appreciating and criticising these works presumes them to be. It is a view expressed by, for example, Thomasson, who says:

[...] The only plausible views will be those that simply make explicit the conditions for existence and identity built into our practices of treating works of art as here or there, surviving and being destroyed, etc.—it can’t turn out that these practices are all wrong, and we are all terribly mistaken about what sorts of things works of art really are.

Thomasson 2006: 251–252

But back to agency. Remember the words in bold in the OED definitions above. Surely what is needed is an ontology of these dynamic processes, rather than some classificatory hierarchical relationship: something more rhizomal than arborescent. And since the production of music involves agency, perhaps we need to look for a philosophical position which better accounts for the diachronic agentic nature of music. Small (1998) points out that music as a noun doesn’t reflect most peoples’ actual engagement with music. Most people treat music as a verb, which is why Small uses the phrase “musicking” and the verb “to music”. He values what music does (the descriptivist view) over what it is (the folk-theoretical modest view). That is to say, he makes music’s ontology supervenient

upon its epistemology. He says, “The act of musicking establishes in the place where it is happening a set of relationships, and it is in those relationships that the meaning of the act lies” (ibid.: 13). Tomlinson (2015: 29) makes a case for the dynamic forces unleashed in musicking, from proto-historic times until the present, being fundamental to the development of modernity itself. Small’s view of musicking implies the interaction of many diverse agents in the production and reception of music. Bown can help us here. He says:

All creators are subject to influence from their culture or environment, and other forces at play in the creative process include chance, the influencing of opinions such as value attribution, the emergence of outcomes through collective action, and the need to consider the potentially active role played by passive objects, as discussed most famously by Latour (1996)<sup>51</sup> and Clark (2003)<sup>52</sup>.” He goes on to say, “I suggest that a critical step is to recognise how the objects of evaluation are dynamic, in flux, and have boundaries that shift at different stages in their history, as they interact with other people and things”.

Bown 2016: 17

Malfouris says that:

The first condition of agency identification should be to define the portion of time which encapsulates the event you want to describe. Then follows the second criterion, which is deciding whether this portion of time constitutes a meaningful event in the larger enchainment of events that constitute the activity you seek to explain. To treat agency as the natural atemporal property of human beings is to strip the notion of agency of any analytic value and significance.

Knappett, C and L. Malfouris, eds. 2008: 25

He describes trying to construct a chrono-architecture of the agentive act. But determining the temporal limits of such a chrono-architecture might be a problem.

Regarding the potter at the wheel, Malfouris says this:

I consider pottery making as a prototypical exemplar and one of the best and diachronic models of the active mind. Not only do I see the ways of potmaking as ways of thinking but I also believe that one can find few other diachronic and cross-cultural examples where all major ingredients of the human cognitive recipe are brought forth and actualised in such an explicit and to a large extent empirically accessible manner.

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<sup>51</sup> Latour, B. 1996. “On actor-network theory: a few clarifications”. *Soziale welt* 369–381.

<sup>52</sup> Clark, A. 2003. *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*. Oxford University Press.

He says that he considers clay to be one of the first truly neuro-compatible materials in the history of humanity. “Neuro-compatible here refers to materials that afford the flow of noetic activity beyond skin and skull thus bridging neural and cultural plasticity” (ibid.). It is a paradigm assemblage, in this case the “brain-body-clay-wheel” (ibid.) assemblage.

A more up to date example of neuro-compatible material might be provided by McLean and Wiggins from the domain of live-coding of music production. This is the genre of (predominantly) dance music where the musical output is manipulated in the live environment by the active writing of computer code. McLean and Wiggins say this:

There is however something curious about how the programmer’s creative process spawns a second, computational one. The computational process is lacking in the cognitive abilities of its author, but is nonetheless both faster and more accurate at certain tasks by several orders of magnitude. It would seem that the programmer uses the programming language and its interpreter as a cognitive resource, augmenting their own abilities in line with the extended mind hypothesis [Clark, 2008].

McLean, A. and G. Wiggins 2010: 3

Binary digital clay, perhaps? To emphasise the dynamic nature of the live (or improvisatory) nature of coding on the hoof, McLean and Wiggins liken the programmer/performer to “a *bricoleur*” (ibid.) who uses a mastery of associations and interactions in creating the musical object in the spirit of a collaborative venture with the machine. For *bricoleurs*, it is more like a conversation than a monologue. And these conversations are multivalent. Perhaps what Brassier says captures this point:

The subject as agent of the act is the point of involution at which objectivity determines its own determination: agency is a second-order process whereby neurobiological or socioeconomic determinants (for example) generate their own determination. In this sense, recognizing the un-freedom of voluntary activity is the gateway to compulsive freedom.

Brassier 2013

The key phrase here for me is “the point of involution”, that acknowledgement of the reciprocity between the musical product and the agentive entity, each mutually being a determinant of the other. This is the process which occurs in the clarinettist’s performance

and in the throwing of the pot. The process, which in the quick-time of the improvisatory act gives rise to Hamilton's "aesthetics of imperfection" (1990).

Who are the writers whose work best underpins this descriptivist and connectionist account of agency in musicking? Some of them are: Jacques Derrida, Gilles Deleuze, Félix Guattari, Ian Hodder (actually an archaeologist), Bruno Latour, Christopher Vitale and Manuel DeLanda. What sort of world do these writers describe? They describe a space of possibilities, potentialities and actualities; a space of solidity but also of flux. It is a space of the tangible and corporeal but also of the intangible and incorporeal. Sometimes it is a space of metaphors. With the exception of Derrida, all of the writers I have just mentioned are, to a greater or lesser degree, in the debt of Deleuze and Guattari in their descriptions of the world. What they all stress in their metaphysical positions is the importance of connections between things. "Assemblage" is a term common to most of these writers, certainly Deleuze and Guattari, De Landa, Latour, Vitale and Hodder all use it. What does it mean? One explanation is that everything occupies a node in a network of other things. What a thing is and what it means is determined by the number of external (and internal) connections it has. Networks and connections are everywhere. We use spatial metaphors to describe them. An assemblage need not be a physical object whose components are all in one small physical locus. Deleuze and Guattari use the metaphor of a rhizome to describe the undifferentiated space from which things condense (my word) and connect (their word, 1987, *passim*). A rhizome in botanical terms is the undifferentiated root of a plant structure, which is homogeneous, with no one part of it privileged in terms of its structure or its potential. This is a suitable metaphor for Deleuzo-Guattarian space, a space which they call the Plane of Consistency or the Plane of Immanence. DeLanda calls this immanent space "possibility space" (in, e.g., Malik, Cox, and Jaskey 2015: 87-94).

Colman says, “The rhizome conceives how every thing and every body – all aspects of concrete, abstract and virtual entities and activities – can be seen as multiple in their interrelational movements with other things and bodies” (in Parr, ed. 2010: 233).

In short, we are what we are, and things are what they are, in virtue of our connections, internal and external. Without connections, there is nothing.

One aspect of the connections which construct assemblages is the dynamic nature of the processes. Deleuze and Guattari describe these processes in fairly obscurantist language as “becomings” and as “deterritorialisation” and “reterritorialisation” (1987, *passim*). What do they mean by this? Their famous example (well famous in continental philosophical circles, at any rate) is the example of the wasp and the orchid (1987: 11). At the moment of feeding and pollination (upon which this particular kind of wasp and the orchid are mutually dependent) they say that the wasp is a “becoming orchid” and that the orchid is a “becoming wasp”. The wasp/orchid assemblage, for that brief encounter, is more important than its subcomponents.

Three writers who tackle the issues raised by these indeterminacies are Jacques Derrida, in *Parergon* (1979), an essay discussing the frame of artworks and Andy Clark and David Chalmers in their article, *The Extended Mind* (in Menary, ed. 2010), which deals with the locus of our cognitive processes. Taking Derrida first: his discussion is mainly about sculpture and painting, but much of what he says about the plastic arts seems to have relevance to temporally extended artworks, like music. He says:

We must know of what we speak, what concerns the value of beauty intrinsically and what remains external to our immanent sense of it. This permanent demand - to distinguish between the internal or proper meaning and the circumstances of the object in question - organises every philosophic discourse on art, the meaning of art and meaning itself, from Plato to Hegel, Husserl, and Heidegger. It presupposes a discourse on the limit between the inside and the outside of the art object, in this case a discourse on the frame. Where do we find it?

Derrida 1979: 12

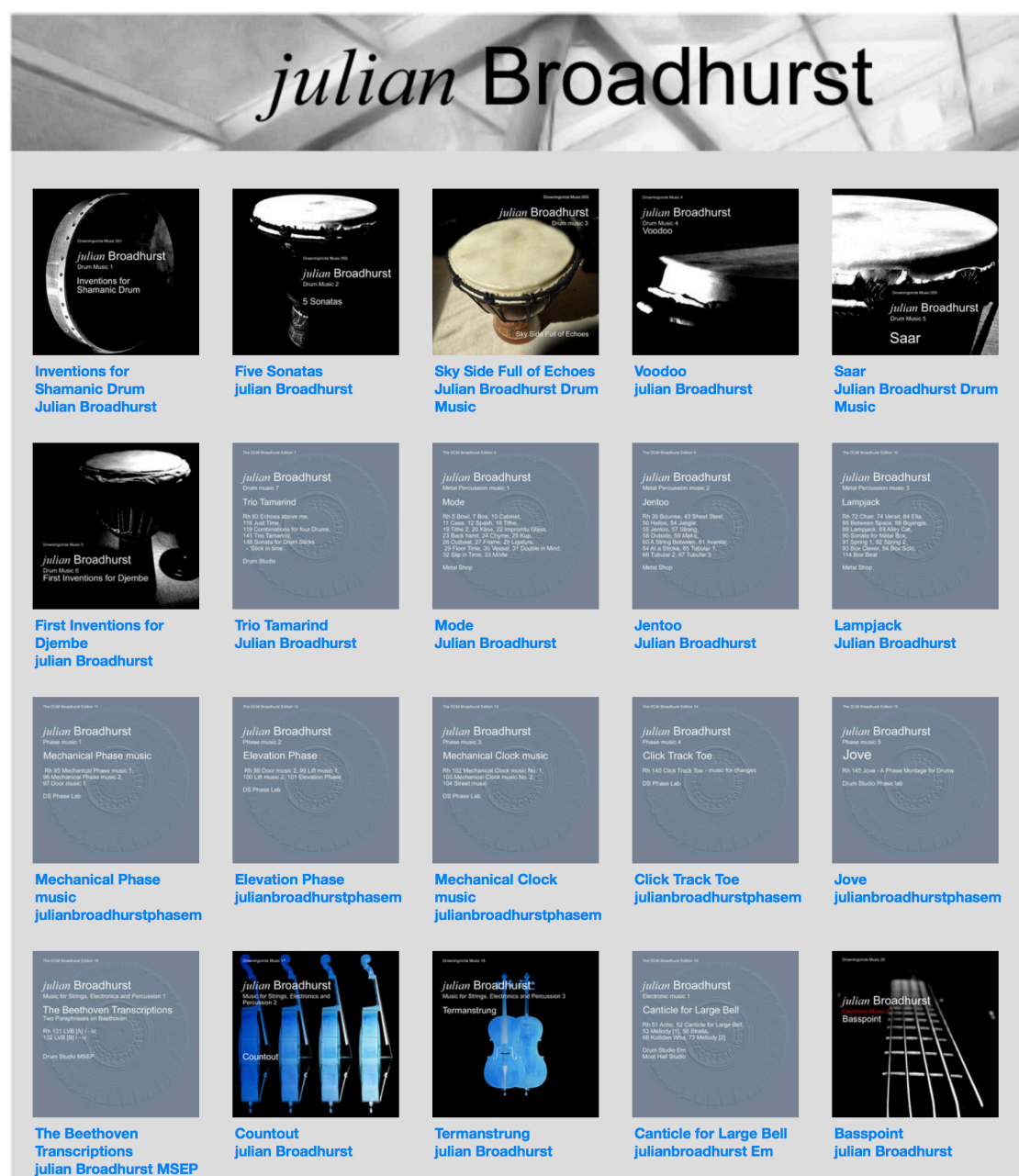
He describes the case of drapery on a sculpture or the architectural colonnades on a palace or the fine gilt frame around a painting. Where, he asks, do the artworks end and the frames begin (ibid.)? Where is the work or “*ergon*” and what is external or “*parergonal*”? It is a tricky question. Howard Hodgkin subverts the nature of a frame in his paintings, by painting on the frames themselves. We might go on to ask, where is the frame or boundary of a musical work? Is it with the score? Or is it the walls of the concert hall? The album cover certainly frames the musical contents of a record or CD. Or is it the concert review?

Let us consider the matter of entanglements and boundaries with a look at the work of one of the vignette participants, Julian Broadhurst. Below is a view of part of Broadhurst’s Bandcamp webpage (Fig. 25).

Broadhurst has a “rigorous” system of categorisation of his works.<sup>53</sup> It is fundamental to his musical worldview. When he was 19 years old, and facing serious illness, he decided to take stock of his accomplishments up until then. He did this, he says, “[...] through rigorous documentation. Confronted with the real possibility of death at 19 in 1986 – I saw that there would be so little left – just a hand full [*sic*] of uncatalogued drawings and poems – I had work to do – that’s what my life had to be about. I get out and I start Cataloguing” (B1). Cataloguing is a process which, “Helps you keep order over the chaos – of ripping one’s life up and throwing it in the air - again!” (ibid.). Rules and structure are also important in Broadhurst’s music(king). He describes a sense of rule-following in his “live composition” (B2) work. He utilises a “form of structured rule playing I had inherited from musical ‘Invention’ – particularly in the work of Bach. And that is the context from which I take the usage of this word. The construction of every phrase is one of process” (B2). He also co-opts other classical usages, such as, e.g., sonata form, to suit his purpose. He says:

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<sup>53</sup> See the Broadhurst section of the Vignettes chapter/abstract machine



**Fig. 25 Screenshot of part of Broadhurst's Bandcamp webpage (B6)**

I took my cue from Hans Werner Henze' – who said the old forms were broken – so I took the word 'Sonata' to connote a piece given to advance and display the technique of the Composer – Performer – In this case I am both – and I believe I am justified in my use of that word – in this context.

Ibid.

He developed a system of supra-categories to describe his music(king). Key to this is his use of the term "tranches". They are:



Emerging areas of compositional interest [which] have recording facilities set up in different parts of the House/Studio. I'm starting to call these 'Sections' or '**Tranches**' of my working interest – to build and define 'a music' of / for - in that area.

Ibid.

Regarding one particular set of his music, the “Red Cherry Edition”, he makes this general point about categorisation, which is a manifestation of, “My obsessive need for documentation in action – helping me cope with such a momentous change in focus” (ibid.). This is how he describes the genesis of his second “tranche”, “Metal Percussion Music, MPm”:

I had a lifetime's love of the sonority of metal – born of 1980s Art Pop music as much as anything else – and 70s 80s 'Industrial music' – Faust, Einstürzende [sic] Neubauten<sup>54</sup> et al. and of course Dear Stockhausen and Xenakis. So many works of mine include or are based on metal sonority. From tuned – Bells gongs, pianos xylophones et al to untuned voices or Ideophones – whose indefinite pitches are an exciting mechanic for my music making. I had defined into existence the second Tranche. I realised that this was a totally separate area of musical interest. So there could not be now a single chronological set of works but rather two concurrent chronologies. It's this idea of presenting chronological sets of pieces from these emerging areas of research interest that gives a need for these Hard distinctions as **Tranches**. This new level of distinction would necessitate a new way of looking at things. Where each Tranche - with its own set of recordings – must have its own set of albums – within my albums – ohhh complexity.

Ibid.

All this building of styles and methods of production and categorisation gave Broadhurst what he describes as “the hinterland of experience” (ibid.), which enabled him “to put everything together in a formal music — a 'notional classical music'”(ibid.). A further development led to the tranche “Music for Strings, Electronics and Percussion, MSEP” (ibid.), an example of which is the album *Countout*, which I consider below.

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<sup>54</sup> Einstürzende Neubauten.



**Fig. 26 Broadhurst: Bandcamp, album cover for *Countout* Music for Strings, Electronics and Percussion 2. (B6)**

This text is Broadhurst's notes to accompany the album *Countout* Music for Strings, Electronics and Percussion 2 on the Bandcamp website (Fig. 26):

The second Album in my series Music for Strings, Electronics and Percussion - MSEP 2 - A long Album of 4 consecutive Works.

The first piece is 'Antis - Rh 133' [from anticipation]. A study on Beethoven that makes you wait, and wait for the punchline - from a moment's observation to a careful Paraphrase or parody if you prefer.

Then Countout 1 and 2 for Cello and electronics - Rh 134 and 135. The Countout works can be heard as separate works or together or as a pair, they are related but independent works. They are choppy Dynamic Works, focusing on Gradations of Tone colour and sways of dynamics. Abstract Expressionism for cello, brittle and brutal.

The last piece 'Countertone' or Countout Duet - Rh 136 - a duet of Countout one - where neither instrument keeps perfect time with the other over 18 minutes so the interest is in their possible variance, but the electronics blurs their performance's - so the devil closes the circle.

"Countout 1 and 2 draw the listener in, as if party to an otherwise inaccessible conversation.

Beguiling work" - Professor Joe Pignato - American Percussionist and Composer - 4th August 2015.

B6

Broadhurst recently reviewed this album, having listened again to it for the first time in a long while. He says this, about *Countout* particularly, but of the early works in this tranche more generally:

MSEP 1 – 3, The Primal block of this 2<sup>nd</sup> most numerous Tranche, found together in the Blue Cherry Group, are foundational studies for the very notion of MSEP, as a distinct research area from the others. Testing the metal [my deliberate choice of spelling – my deliberate choice of metaphor]. I felt the cello was the instrument most redolent of a 'Classical' Modernism as it is not commonly found in any other music form. I borrowed one from a friend. I've said elsewhere it is Abstract Expressionism for cello – a performative act with the studied imperative of music, a growling progress. It was a big risk and I grew from it. I was making a statement in contemporary Classical Idiom. It is also a percussionist's response to the cello. It is a piece of Avant Gardism with a musical heritage inside it. I was it seems touched by music of those times.

B13

Regarding what these early experiments in this tranche led on to, he says this:

*Countout 1 & 2* - Rh 134 and 135 are pieces about Gesture – about timing and about the cello itself the wood and the wire – and the extra performative noises [I certainly brought them out in the mix]. They are an adoration of the music and the performances I Absorbed that makes the cello probably my favourite instrument. They led on to so much. To the sister album *Counting*, to the Cello suite *Never Not Actually Arriving*: to the *Cello Sonatas* and to my work in Ensemble D'juil with cellist David Dhonau.

Ibid.

*Rhizoanalysis*:

Percussion has always been important in Broadhurst's music(king):

I'd been drumming for years. It vanishes into childhood – We had a metal cabinet as part of the kitchen furniture with a gas boiler in – it was warm – sometimes too warm, oftentimes cold and I would sit on it – and percuss on it with my fingers 'Gloriously'! I acquired a menagerie of drums – African, Indian – and a double ended Tibetan drum, which would later become a showcase instrument for me.

I rarely used synthetic sound – I’m loth to – I’m a sound recordist I don’t need to – it’s inauthentic. With me if you think you can hear a cello – you can – but having just said that when I transform a cello’s voice – what is it the voice of ? I have spectrally transformed one instrument to another – but what have I done to authenticity?

There are de- and reterritorialising links out from the album *Countout*. Broadhurst talks of his later (chronologically) album *Counting* (MSEP 6) in these terms:

A sister Album to MSEP 2 *Countout* – compare the colour saturations on the covers – This is ‘MSEP 6 *Counting*.’ Gloriously fragmenting the *Countout* cello gripe into a million flying fragments rolling through them – I absolutely love this – serious waters for me now. The Headlining pieces of the album - “Counting 1” and the shorter “Counting 2” are quite well known – especially the second piece – which was selected by Demerara records – a London classical start up I was in on the ground floor of – run by composer Neil March, in fact – to feature on its first release – the Triple album – *This is the Future Calling*, for which Jim Tetlow and I designed a beautiful cover – and company logos etc.. *Counting* opens with an experimental flute piece played by a darling young woman – we’ll call her J. It rounds off with another Nono-Particulate piece *Nom e Nono* – Rh 239 - from a future time - that was looking for an MSEP home. Complex – percussive and difficult MSEP.

Ibid.

Broadhurst acknowledges that the classificatory system he has developed is not always clear-cut, “There is overlap between the tranches,” he says (ibid.). And the attempt to classify everything has its drawbacks, as Broadhurst recognises in his discussion of his “Nono Series”:

There are six pieces in this - **The Nono Series** – Particulate 1 & 2 – Rh 162 & 163 : In Particulate - Rh 164 : Nonosphere – Rh 165 : Trio e Nono – Rh 166 and Nonoquinox – Rh 167 – pronounced No –no[c] quinox. Over 3 hours of music between them – and about a million problems for me as a producer. I didn’t know what to classify them as and so I didn’t know where to place them. Encountering new phenomena like this means old definitions have to stretch. Thematically related – it is a series that could have been a box set on its own - as a series of 6. It can’t though - with my constraint of calling everything a spider or a fly!

Ibid.

Neither is Broadhurst averse to metaphorical descriptions of his music(king). Of his album *Very Quiet Music* (MSEP 8), he says, “I stand by this as a piece of conceptual painting” (B4). He hints at further cross-categorisation (deterritorialisation) in these remarks about the album *Uranic Phase* (MSEP 9):

I know this can be a difficult area for me and that most of these distinctions can seem to pull in the same direction but there is a good reason for it here. I felt that despite a high level of production away from the pure acoustic – the acoustic of performance was still there in the metallic punctuation I provide through it and you can make out the action of the bow on the string. It is a performance advanced by electronics rather than an Electronic piece - there is nothing systematic about this – therefore I'd still want to call this an Electroacoustic piece. Also the bass is a string instrument. There is often an overlap between these genre definitions and this is a case in point.

B4

Broadhurst makes some points about the internal connections which are extant in a work. These are remarks about stratification and lines of flight, de- and reterritorialisations:

Because in a multiple movement work – I would expect individual movements to be discrete statements of import to the whole such that the absence of a movement removes something necessary to the completeness of the whole. Or put it another way a movement divorced from its whole is incomplete – perhaps it doesn't work to say that it is incomplete like that – you would get used to it I suppose if you had never heard the whole. But – certainly a multimovement work gives us discrete opportunities to view thematic material from the other side – from another side – and advances the possibility for levels of depth in a work.

Ibid.

It is human nature to categorise and classify, based on analysis and interpretation of the *Gestalten* of our phenomenological experience. And, of course, Broadhurst's classificatory regimen is no exception to this. But it is clear from a consideration of Whiteheadian encounters as broadly construed in Vitale's networks and DeLanda's assemblages, that the strict reification of entities such as albums is subject to the fuzzy vagaries of interpretation, and the entanglements which are necessarily found in a consideration of the music(king) space as rhizomatic.

So much for the boundary conditions of something intangible, like the musical work, even the improvised musical work. Where does the boundary lie as between us as persons and our tools, artefacts and the wider world, that exponentially growing entanglement "as the strands of human-thing entanglement lengthen [...] and intensify" (Hodder 2014: 33)? Because, "as humans we are involved in a dance with things that cannot be stopped, since we are only human through things" (Hodder 2014: 34).

In *The Extended Mind* (in Menary (ed.) 2010), Clark and Chalmers postulate that, as modern human beings, we have offloaded some of our cognitive capacities and functions to artefacts external to our brains. That is to say, some aspects of our cognition are now extra-cranial. When that article was first published in 1998, they gave as their example the case of someone called Otto and his Filofax. Otto, who is suffering from memory loss, uses his annotated Filofax to find his way to, for example, the Museum of Modern Art. Clark and Chalmers have had their critics. Their main defence is that extra-cranial devices (such as notebooks, mobile phones, and computers) form couplings (i.e., assemblages) with cognitive systems (brains) which incorporate them into one single cognitive system (Clark in Menary, ed. 2010: 84). But why should this surprise us? In these terms, humans have been using extra-cranial artefacts as component parts of cognitive processes since the dawn of time. In Clark's terms, we are all cognitive cyborgs, natural born (Clark 2003). We are human/technology symbionts.

Aren't our clarinettist's interactive assemblage with the computer and sound equipment and our potter at the wheel good examples of this human/technology symbiosis? So a similar question to that which I posed concerning the boundaries of artworks also arises in the case of us as persons. Where are *our* boundaries?

There is a word in classical Greek, "*prosopon*" (πρόσωπον). It was used by early commentators on the Gospels to signify aspects of the true nature of God as represented by the Trinity. For example, "The *prosopon* of the Father is the Logos, by whom God is made visible and manifest" (Clement of Alexandria's *Paedagogus* quoted in Grillmeier 1975: 135). Other meanings are; person, face, visage, countenance, appearance, mask, part in a drama, and character. In one sense it might mean the true limit or boundary of a person. We could argue that it covers similar cases to those I have mentioned; the person/technology symbiont or cyborg. *Prosopon*, then, is the true nature and boundary of the cyborg. In a like fashion to Derrida's use of the Greek "*parergon*" to denote that which is

external to the work (1979), I propose the neologism “paraprosopon” (*παραπρόσωπον*) to denote that which is external to the true nature (or boundary) of the person. And if the *prosopon* is everything which constitutes an individual person (which might include, counter-intuitively, technology or even other persons) so paraprosopon is everything outside of those components. Just as with Derrida’s par/ergon, it is the nature and ‘location’ of the *boundary* that I am interested in. Technology pushes that boundary all the time and it is also quite fuzzy. So, just as with the previously mentioned claim of Wittgenstein that in order to draw a limit to thinking we should need to think both sides of it (1974: 3), then for us to define the extent or limit of a person, we need to know what is in and what is out, which is tricky. Hodder says, “Like any other thing, the human frame is a transient bounded entity through which matter, energy and information flow, connecting it to other things” (2012: 219). Perhaps “countenance” just is that boundary or metaphorical surface of the *prosopon*. The trouble lies in pinning it down.

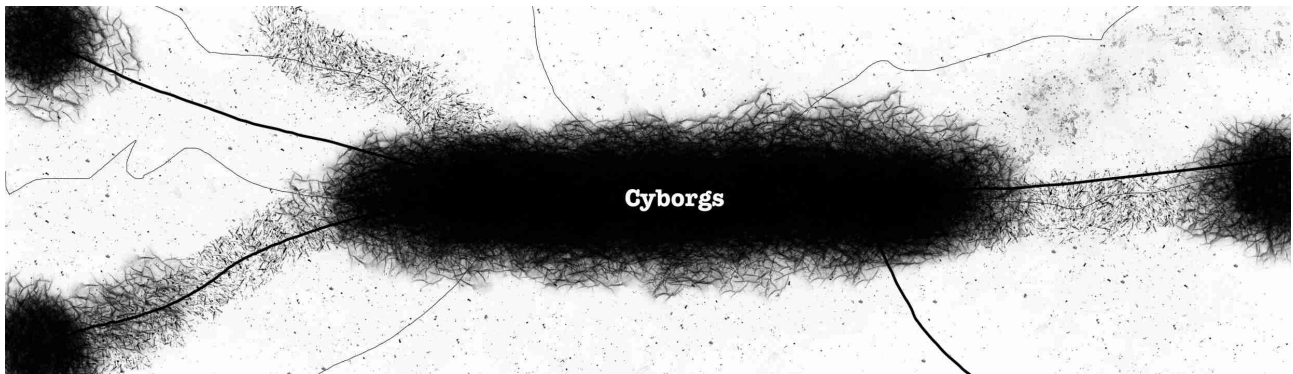
So, to sum up, we’ve seen that defining the temporal and physical limits of the person and things which make up the assemblage of, for example, an improvising musician is problematic. Sometimes the diachronic limits to the chrono-architecture are widely separated. Finding the boundaries between persons and things (and hence identifying the grey spaces talked about by Kosko and Malfouris) is very difficult indeed. If we are amenable to an ontology of the assemblage and the consequences of accepting something like the Extended Mind Hypothesis, then some of the problems of finding a starting point for consideration of agency go away. I think that the place to look for these liminal but fuzzy components is in a temporally nuanced version of Deleuzo-Guattarian immanent space, which I call Entangled Network Space.



# Intermezzo V



For description see pp. 229-233



→ and... and... and... you arrive here on a line of flight...

## Cyborgs

The term “cyborg” was coined as recently as 1960:

For the exogenously extended organizational complex functioning as an integrated homeostatic system unconsciously, we propose the term “Cyborg.” The Cyborg deliberately incorporates exogenous components extending the self-regulatory control function of the organism in order to adapt it to new environments.

Clynes and Kline 1960: 27

*Homo sapiens* has had an inextricable involvement with technology amounting to an exogenously extended integrated functioning system since the dawn of time. In this chapter/abstract machine I consider some writers who claim that various aspects of what is fundamental to us as humans necessarily involve a consideration of us in an entangled, symbiotic relationship with technics, both as individuals and, at a meta-level, as a species. Alongside these readings, I consider aspects of the work of the vignettes’ participants insofar as they constitute examples of assemblages that are themselves cyborgian abstract machines.

In their 1998 paper, *The Extended Mind* (in Menary, ed. 2010: 27-42), Clark and Chalmers postulate that, as modern human beings, we have offloaded some of our cognitive capacities and functions to artefacts external to our brains. That is to say, some aspects of our cognition are now extra-cranial. If this is true, then the ever-increasing interdependence between people and technology in terms of musicking deserves examination against the Extended Mind Hypothesis.

As I pointed out earlier, Clark and Chalmers gave as their example the case of someone called Otto and his Filofax. Otto, who is suffering from memory loss, uses his annotated Filofax to find his way to, for example, the Museum of Modern Art. Those extra-cranial notes are, they claim, offloaded cognitive processes. Clark and Chalmers have had their critics. Their main defence is that extra-cranial devices (such as notebooks, mobile phones, and computers) form couplings (i.e., assemblages) with cognitive systems (the brain) which incorporate them into one single cognitive system (Clark in Menary, ed. 2010: 84). But why should this surprise us? Clark (2003) says that we are all “Natural-Born Cyborgs”. If we are, as Clark says, “human-technology symbionts” (ibid.: 3) then this is not a new phenomenon; we have always been so. Considering aspects of human/technology relationships in addition to just cognitive acts, Stiegler supports this view. He says, “the invention of the human is technics” (Stiegler 1994<sup>55</sup> (1998): 148; quoted in James 2012a: 62). He also says:

With the advent of exteriorisation, the body of the living individual is no longer only a body: it can only function with its tools. An understanding of the archaic anthropological system will only become possible with the simultaneous examination of the skeleton, the central nervous system, and equipment.

Stiegler 1994: 148

Frabetti points out that the concept of technology has always been tightly connected to the concepts of ‘knowledge,’ ‘language,’ and ‘humanity’ (Frabetti 2015; 3). She remarks that Stiegler’s philosophy is based on the central premise that the human has always been technological (ibid.: 9). In what we might call a development of the Extended Mind Hypothesis, Stiegler points out that technicality not only constitutes an assemblage with our bodies in terms of current cognition, but reminds us that cognition is at least partly constituted in memory. In a chapter entitled The “Global Mnemotechnical System” he says this:

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<sup>55</sup> James refers here to the original French version of the text: Stiegler, B., 1994. *La Technique et le temps 1: La Faute d’Épiméthée*. Paris: Gailée.

Human beings disappear; their histories remain. This is a huge difference from all other living beings. Among the various traces human beings leave behind, some are products with entirely different ends from any “conversation with memory”: a clay pot, for example, is not a tool made to transmit memory<sup>56</sup>. But it does so, spontaneously, nonetheless, which is why archaeologists consult in their research: pots, etc., are often the only witnesses to the most ancient cultural *episodes*. Other traces - other objects - *are* however dedicated to memory transmission, traces such as writing, photographs, phonograph recordings, or the cinematographic images. With these last, the production and transmission of traces - retentions - have become an industry.

Stiegler 2011: 131

From this perspective we can see that technology’s involvement with our present also carries traces of past events. This is a point which is a major aspect of Hodder’s thesis in *Entangled: An Archaeology of the Relationships between Humans and Things* (2012).

Hansen says, “[it is] the support for the inscription of memory” (quoted in Frabetti 2015:9). And Frabetti says, “that is, technology is always a memory aid, and only through memory do human beings gain access to their own past, and therefore become aware of themselves, or gain a consciousness” (ibid.: 9-10). So human beings may be said to ‘exteriorize’ their memory into technological objects, which in turn are nothing but memory exteriorized (ibid.: 10).

Petzold speculates that writing was probably invented specifically to compensate for the failings of human memory (Petzold 2000: 190). Stiegler takes the idea further in order to modify Heidegger. By involving technology in human evolution (with its memory function and cognitive capacity), humans are able to evolve through means beyond the genetic replication of coded DNA. Stiegler says, “As a “process of exteriorization,” technics is the pursuit of life by means other than life” (Stiegler 1998: 17). He calls this process “epiphylogenesis” (ibid.: 135 and *passim*):

Epiphylogenesis is the transformation and evolution of the human species through its relationship with technology, rather than on the basis of its genetic program. Furthermore, by functioning as a support for memory, a technical object for Stiegler forms the condition for the givenness of time in any concrete situation. For this reason he maintains that human beings can experience themselves only through technology.

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<sup>56</sup> Although see Malfouris (in Knappett and Malfouris, eds., 2008: 22), where he says that the clay used in pot-making is one of the “first true neuro-compatible materials”

James explains epiphylogenesis thus:

Epiphylogenesis [...] is the process by which successive articulations of human life are conserved, accumulated and sedimented within the technical systems which form our individual and collective time consciousness (and therefore form us as human beings). To repeat, it is a specifically human trait to conserve the memory and meaning of the past through our relation to technical apparatus and systems and to form our sense of time in this relation.

James 2012a: 67

Stiegler is interested in the double meaning of the term “aesthetic”. He conceives of it in its modern sense of the realm of art and artistic production, but also in its primary sense as the experiencing of embodied senses (*aisthesis*). He sees our human-technological (cyborg) experience “always unfolding against the backdrop of a shared sensory world” (ibid.: 80). This would be a cyborgian aesthetic history: one which would “unfold in the successive historically contingent structures in which bodily sense organs and physiological organization are conjoined or co-articulated with artificial organs (technical objects, tools, instruments, works of art, etc.)” (ibid.). Such a “history of aesthetic genealogy” structures our “shared sensory experience [...] the ‘common aesthetic ground’ on which political community is based” (James 2012a: 80). It is a view akin to Shaviri’s (Whiteheadian) assertion of aesthetics as “first philosophy” (op cit.).

Since humans first used sticks and stone tools and developed language, technology has been part of us and we of it. Deleuze and Guattari say this:

Even technology makes the mistake of considering tools in isolation: tools exist only in relation to the interminglings they make possible or that make them possible. The stirrup entails a new man-horse symbiosis that at the same time entails new weapons and new instruments. Tools are inseparable from symbioses or amalgamations defining a Nature-Society machinic assemblage. They presuppose a social machine that selects them and takes them into its “phylum”: a society is defined by its amalgamations, not by its tools.

Deleuze and Guattari 1987: 99-100

Leroi-Gourhan says that language and tools evolve together because they are, “neurologically linked and cannot be dissociated within the social structures of

humankind” (Leroi-Gourhan 1993: 114; quoted in Frabetti 2015: 12).<sup>57</sup> The processes of externalising what remains just instinctive in animals, for humans, a placing outside of ourselves our tools and memory means that contemporary technology is integrated into a unitary process of biocultural evolution (Frabetti 2015: 13). Tomlinson describes these processes as “a coevolution of biology and culture - a *biocultural* coevolution” (2015: 13).

Hodder says:

According to Merlin Donald<sup>58</sup>, technologies and media have constituted part of human cognitive architecture since the Upper Palaeolithic. Changes in external symbol systems have altered the capacity for human memory.

Hodder 2012: 35

In his 1952 novel *Limbo*, Wolfe says, “[t]he human skin is an artificial boundary: the world wanders into it, and the self wanders out of it, traffic is two-way and constant” (quoted in Clark 2003: pref. material). So fundamental is our engagement with technological artefacts that we consist in a state of entangled-symbiosis. Hodder tells us, “[...] the mind is an embodied and distributed process. It is, like any other thing, highly connected, and not inert” (2012: 9). Hodder’s words reinforce Clark’s claims concerning symbiosis:

But if a human is a thing, it is a thing of a particular kind, one that has developed a very large and complex nervous system, body and mind thoroughly dependent on other things to exist.

Ibid.

Stiegler describes the symbiotic relationship as oscillatory:

We will see the question of a technical determinism arising in a permanent oscillation between the physical and biological modalities of this evolution, the technical object, an organized and nevertheless inorganic being, belonging neither to the mineral world nor simply to the animal.

Stiegler 1998: 26

It is this question which prompts another from Frabetti when she asks, “In what way is software a ‘what’ that constitutes the ‘who’ that interacts with it? In what way is one

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<sup>57</sup> For more on Leroi-Gourhan’s views on the future of exteriorisation of memory and cognition see Frabetti 2015: 13.

<sup>58</sup> Donald, M. 1991. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge MA: Harvard University Press.



constituted by software as much as one produces and uses it” (Frabetti 2015: 15)? It is a question which generalises to all human-technological symbiosis. One cannot be a pianist without a piano. In fact, human beings cannot survive without a relationship with what Stiegler calls “organized inorganic matter” (quoted in *ibid.*: 25). This “human prostheticity” forms the basis for memory (*ibid.*). James says that for Stiegler, “the impersonal memory conserved in our surrounding technical environment constitutes us, at a fundamental level, as temporal beings who are aware of a past, experience a present and anticipate a future” (James 2012a: 66).

There is an element of Heideggerian “being-in-the-world”<sup>59</sup> (quoted in Hodder 2012: 28) in this way of seeing things. Hodder tells us that Heidegger’s view of an integrated being-in-the-world is overly reliant on notions from a pre-modern world, a *völkische Lebenswelt*, when Heidegger uses his expression *zuhanden* (ready-to-hand) (*ibid.*). I think that this is a false claim. Even in our post-modern world of virtual reality and virtual access to things, we might say that we involve ourselves with things by means of a kind of virtual ready-to-handedness (*virtuelle zuhanden*).

Hodder goes on to say:

I am interested in how the human dependence on things leads to an entanglement between humans and things that has implications for the ways in which we live in societies today.

Hodder 2012: 10

Hodder raises a similar point to that of Derrida (1979) concerning the boundaries of things. How, he asks:

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<sup>59</sup> Heidegger here describes something akin to a Deleuzian assemblage. In *The Question Concerning Technology*, regarding the reciprocity between humans and their wider environment (including technics), he says, “Since man drives technology forward, he takes part in ordering as a way of revealing. But the unconcealment itself, within which ordering unfolds, is never a human handiwork, any more than is the realm through which man is already passing every time he as a subject relates to an object. [...] When man, in his way, from within unconcealment reveals that which presences, he merely responds to the call of unconcealment even when he contradicts it. Thus when man, investigating, observing, ensnares nature as an area of his own conceiving, he has already been claimed by a way of revealing that challenges him to approach nature as an object of research, until even the object disappears into the objectlessness of standing-reserve” (Heidegger 1977: 18-19). Regarding this point, Hegarty says, “Martin Heidegger argues that technology is relational, a mode that defines how humans interact with the world, and, above all, that it is ‘a way of revealing,’ or a ‘realm of revealing, i.e., of truth’” (Hegarty 2007: 23). This description is consistent with assemblage formation on the Deleuzian Plane of Immanence.



is the entity defined in the first place? If things are always connected, then how can we discern what the underlying entities are - where do we draw the boundaries that identify an entity as contained?

Hodder 2012: 10

This is a problem which is considered in the Entangled Network Space chapter/abstract machine.

Hodder has used the expression “the ways in which we live in societies today” (op.cit.). There are implications here for the heterochronic and diachronic nature of such interactions. The dynamic nature of our societal assemblages is brought home by his remarks about how we see the world:

There could thus be no possibility of experiencing today a Neolithic response to a landscape, just by looking at it and walking through it. Our responses to remains of prehistoric landscape today are situated within our own beings-in-the-world and Fleming (2006) has demonstrated the resulting subjectivity we bring to the experience of ancient landscape.

Hodder 2012: 29

In other words, we are enculturated in the here-and-now. How could we be other? We could, by analogy, make a similar point concerning music, even music from a later period than the Neolithic. For example, there has been a fashion for so-called authentic performance of period music. A baroque concerto might be performed on instruments contemporaneous with the time of the piece's composition and in the supposed style of players from that time. Perhaps the performers might even dress up in period costume. But the modern auditor cannot aurally survey the baroque soundscape. She has her iPhone in her bag and access to Spotify. She cannot unhear the musical enculturation of the intervening 250 years. The Bachian soundscape is now enmeshed with Beethoven, Brahms, Britten, The Beatles, Bananarama and Bhangra Boys, and our auditory subjectivity cannot unmesh them.

We could give any number of examples of where our wetware cognitive processes are enhanced (or even facilitated) by our involvement with the environment beyond the artificial boundary of our skull and skin. If asked to multiply two numbers together, say

1,347,948.091 and 0.001009463, few of us would have the ‘internal’ cognitive capacity to tackle the problem entirely in our heads. We might, if we know the technique, use a pen and paper to execute the algorithms we were taught at school, or, more likely nowadays, resort to a calculator app on our mobile phones. People increasingly do not memorise telephone numbers when they can be conjured in an instant onto the glowing screens of our mobiles. Why try to remember the details of the route from London to Milton Keynes when our in-car satnav will take us door to door without a hitch?

Clark said as long ago as 1997, “Human reasoners are truly distributed cognitive engines” (Clark 1997: 68, quoted in Hodder 2012: 36). Hegarty claims that cognition itself (whether distributed or not) amounts to a technology. Regarding the art movement Fluxus, he says, “Tape recording, gramophones, modernist notions of noise all feature in Fluxus. The conceptualism that ties it together (however messily) is also a technology” (Hegarty 2007: 27). Hodder gives some ethnoarchaeological examples of the way simple technologies, such as soil plastering of southern Indian houses was not just symbolic but also “practical and embodied” (Hodder 2012: 36). It is an example where Hodder says, “we could go farther than saying that cognition is distributed and argue that self extends into the material world around” (ibid.). This is not a completely new notion. Writing sometime between 1929 and 1948, Wittgenstein said this:

605. One of the most dangerous ideas for a philosopher is, oddly enough, that we think with our heads or in our heads.

606. The idea of thinking as a process in the head, in a completely enclosed space, gives him something occult<sup>60</sup>.

607. Is thinking a specific *organic* process of the mind, so to speak - as it were chewing and digesting in the mind? Can we replace it by an inorganic process that fulfils the same end, as it were use a prosthetic apparatus for thinking? How should we have to imagine a prosthetic organ of thought?

Wittgenstein 1967: 105e-106e

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<sup>60</sup> Wittgenstein is here taking issue with the substance dualism of Descartes and the transcendent generally.

Clark and Chalmers ask, “Where does the mind stop and the rest of the world begin” (In Menary ed. 2010: 27)? They describe cognitive functions in terms of an:

[a]ctive externalism, in these cases, the human organism is linked with an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right.

Ibid.: 29 *et seq.*

This is an assemblage, in the terms described by Deleuze, Guattari, DeLanda and the other connectionist philosophers. Clark and Chalmers give these as criteria:

1. All the components in the system play an active causal role.
2. They jointly govern behavior in the same sort of way that cognition usually does.
3. If we remove the external component, the system’s behavioral competence will drop, just as it would if we removed part of its brain.
4. Therefore, this sort of coupled process counts equally well as a cognitive process, whether or not it is wholly in the head.

Summarised in Menary, ed., 2010: 3

Critics of the Extended Mind Hypothesis (notably Adams and Aizawa 2001 and in Menary ed. 2010: 67-80) claim that the external environment has an asymmetric influence on inner processes of mind, whereas supporters claim that there is a symmetric influence, where “the inner and outer features have a mutually constraining causal influence on one another that unfolds over time” (Menary ed. 2010: 4).<sup>61</sup> The debate is too long and complex to pursue in detail here. Suffice to say that it is in this second sense, of symmetric influence, that examples discussed from the musical vignette data should be construed, in assemblage terms and in relation to Entangled Network Space. It is a theme taken up by Hodder, who asks, “Is it possible to develop a theory that gives real symmetry to humans and things (as argued by Latour 2005 )[...]” (Hodder 2012: 41)? In a search for that

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<sup>61</sup> See my Rhizo-aesthetics chapter/abstract machine for a discussion of the (non-)reciprocity of the connections between the nodes in assemblages.

symmetry he goes on to discuss how things<sup>62</sup> depend on humans and how the two (things and humans) are “entangled” (ibid.: 41 *et seq.*).

Let us turn to a discussion of Hodder’s notion of “entanglement” and how it can play a part in Entangled Network Space. Hodder discusses four different dependencies: how humans depend on things (HT), how things depend on other things (TT), how things depend on humans (TH) and humans depend on humans (HH). Entanglement is, he says, simply the addition of these four sets of dependencies and dependences<sup>63</sup>. So,

$$\text{Entanglement} = (\text{HT}) + (\text{TT}) + (\text{TH}) + (\text{HH}) \text{ (Hodder 2012: 88)}$$

Latour criticises the standard sociological approach to categorising the world. He says:

Social explanations run the risk of hiding that which they should reveal since they remain too often ‘without object’. In their study, sociologists consider, for the most part, an object-less social world, even though in their daily routine they, like all of us, might be constantly puzzled by the constant companionship, the continuous intimacy, the inveterate contiguity, the passionate affairs, the convoluted attachments of primates with objects for the past one million years.

Latour 2005: 82-83

This is a mistake which Latour attributes to disciplinary polemics amongst what he calls “social scientists” and “hard scientists” (ibid.: 84):

It is fair to say that social scientists were not alone in sticking polemically to one metaphysic among the many at hand. Their ‘dear colleagues’ in the other hard science departments were also trying to claim that all material objects have only ‘one way’ to act and that was to ‘causally determine’ other material objects to move.

Ibid.: 84

These are not sufficient means “to describe the entanglements of humans and non-humans” (ibid.). Latour has a chapter in the form of a Platonic dialogue between a student and a professor (ibid.: 141-156). The imaginary student accuses the Actor Network

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<sup>62</sup> Interestingly, etymologically, “thing” derives from the Old English and Old German “ting” meaning “assembly” (Hodder 2012: 42), so the notion of things as assemblages has a good long lineage. Latour explicitly uses the same construction, “It’s the object itself that adds multiplicity, or rather the thing, the ‘gathering’” (Latour 2005: 144).

<sup>63</sup> See Hodder 2012 for a detailed exegesis of the subtle differences between “dependencies” and “dependences”.

Theory-supporting professor of being a relativist rather than objectivist. The professor replies:

I have no real sympathy for interpretative sociologies. No. On the contrary, I firmly believe that sciences are objective—what else could they be? They're all about objects, no? What I have said is simply that objects might look a bit more complicated, folded, multiple, complex, and entangled than what the 'objectivist,' as you say, would like them to be.

Ibid.: 144

Hodder supports this Latourian view when he says, “Entanglement as a term aims to allow a materialism but embedded within the social, the historical, the contingent” (Hodder 2012: 96). Hodder *seems* to be making a claim for stasis when he says:

Humans get entrapped by the ways in which each node in the web is hyper-connected to other nodes, so that all nodes are maintained in position by the overall structure of the entanglement.

Ibid.: 98

He must be read as thinking that “hyper-connected” implies dynamism and heterochronic change. Then he would be in accord with Deleuzian thinking.

DeLanda also has a view which would be supportive of the Extended Mind Hypothesis, and hence, supporting the notion of us as cyborg assemblages. He says, “we explore the idea that cognitive tools are not fused into a totality but rather coexist and interact in exteriority” (DeLanda 2016: 5). And in these relations of exteriority, there are cognitive tools which are available to the cognising subject. DeLanda says:

Thus, the cognitive tools that are available to practitioners at any particular time form an open set, and must be conceived as related to one another in exteriority. This implies a rejection of *holism*, that is, the idea that all cognitive tools are fused into a monolithic theory or paradigm which must be accepted or rejected as a whole.

Ibid.: 89

Tomlinson discusses the emergence of musicking as a cultural phenomenon for humans in consequence of our involvement with the technological:

Musicking was always technological. Its modes of cognition were shaped from the first by the extensions of the body that were the earliest tools and weapons, in ways that left a deep imprint on both sociality and the genome. Musical instruments as such came late, but this broader, crucial instrumentality appeared long before there was music. We need to identify and describe this prepoietic poesis.

Musicking was always social. If the cognitive capacities basic to it emerged from a constant, intimate interplay with available materials, their affordances, and their manipulation, all these took place, through the whole of history here described<sup>64</sup>, in the context of copresent interactions between individuals and within groups. **The technological and the social were always bound together, and this *technosociality* formed the matrix in which musicking took shape.**

Tomlinson 2015: 48-49, my emphases

And in a paradigmatic statement amounting to a confirmation of entanglement within a meta-assemblage, “techno-complexes” (ibid.: 242), Tomlinson says:

The final coalescing of musicking was not an independent development but a conformation involving language and the metaphysical imaginary. All three are characteristic, even definitive gestures of human modernity, and none of them could have taken their modern forms without the simultaneous formation of the others.

Ibid.: 50

So, to modify Clark’s terminology, in the light of Tomlinson, we may say that we are technosocial musicking linguistic imagining cyborgs.

One attraction of an assemblage view of human-technology symbiosis is that it need not be afraid of a straightforward evolutionary problem. That is a problem which would suppose that technological development ought to be on a continuous spectrum through diachronic time. But as Tomlinson points out, there are discontinuities in the archaeological record. Palaeolithic artefacts found in what is now Germany include ivory carvings of a horse, a mammoth, a bird and a big cat, and “the several musical instruments of Geissenklösterle, Vogelherd, and Hohle Fels” (ibid.: 246). These artefacts are missing from “the two dozen or so other ‘classic’ Aurignacian sites that share so much technological knowhow with the Swabian ones” (ibid.). Tomlinson’s explanation is that the presence of these artefacts in one place, but not in other contemporaneous sites might represent “the epicyclic, local burgeoning of these gestures in circumstances not repeated for hundreds of miles around or thousands of years after them” (ibid.). He goes on to say, “It is unwarranted to assume that every cultural formation within a group reflects the behaviours also of every other group within the same techno-complex” (ibid.). We are in danger of ascribing modern

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<sup>64</sup> Tomlinson’s book is called *A Million Years of Music: The Emergence of Human Modernity*.

norm-forming ideas onto truly ancient cultural practices. Tomlinson asks, “[...] why should we see here a continuous technomusical tradition of ten or twenty millennia” (ibid.: 248)?

The mistake, he says:

Is to envisage human cultural accumulation in anachronistic ways: as the unbroken passing down and dispersion of a tradition akin, say, to European painting since the Middle Ages, rather than something distinct and impressively deeper in its function [...].”

Ibid.

We cannot say with certainty, and without the long lens of history, whether our current musicking practices and assemblages are epicyclic anachronisms or not.

I would say two things about this. Firstly, it demonstrates the difficulty of placing temporal boundaries around the formation and disformation of assemblages (what Malfouris calls a “chrono-architecture” (Malfouris 2008, in Knappett and Malfouris, eds. 2008: 25). This is discussed in more detail in the ~~chapter~~ abstract machine on Entangled Network Space. Secondly, it provides a good example of Deleuzo-Guattarian re- and deterritorialisation.

If we accept Tomlinson’s description of us as technosocial entities, then we must surely accept the consequences of this technological social assemblage for our cognitive status. That is to say, our minds are extended throughout the social realm by virtue of the entanglements implicit in such assemblages. It is a contingent fact particularly true of musicking:

In the ethnographic and historical records, from ancient times down to the present<sup>65</sup>, it is connected ubiquitously to religion, rituals, and the institutions associated with them - so regularly, in fact, as to suggest the connection as a kind of default setting for human behaviour.

Tomlinson 2015: 275

The extra-cognitive realm becomes:

[t]he whole taskscape now transcendentalized so as to express the hierarchies mapping the society’s metaphysical as well as physical spaces and to formalize these in meta pragmatic orders.

Ibid.: 274

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<sup>65</sup> And we must presume, into the future.

Tomlinson discusses this in terms of what Bloch calls the “*transactional social*” (quoted in *ibid.*: 270). He says that Bloch describes the transactionally social as leading humans to construct “essentialized social roles assigned to people and to groups” (*ibid.*). It leads humans to have notions such as kingship, which go beyond the temporal span of an individual king. He says that, “[s]uch roles transcend the identities we structure through face-to-face transactions, creating what Bloch calls the *transcendental social*” (*ibid.*). So long as we treat this special case of the transcendent as belonging to the Deleuzian plane of immanence, we can accommodate the choice of language.

### *Rates of change in technosocialisation*

Hodder reminds us that our ancestors, although dependent upon technological artefacts, were less so than we are today:

For at least seventy thousand years, anatomically modern humans, people biologically like us in every way, lived in small mobile groups of ten to thirty people, aggregating from time to time, and sometimes producing wonderful wall paintings and magnificent implements. Their success and mobility were partly possible because they carried very little stuff with them. The small bands had clothes made of skin tied together with sinews and plant cords. They had baskets and skin containers and through time they added bone tools such as needles. They had wooden spears and bows, as well as tools and weapons made of chipped stone such as flint and obsidian. They lived in cave entrances or in huts made of various plants or bones from wild animals. You could place on a small table all the material belongings of a man or woman twenty thousand years ago. They had very little stuff.

Hodder 2014: 27-28

Nowadays, our technological dependencies are richer:

As an archaeologist, I am interested in when this headlong flight to things, our dependence on stuff, began. In my house, as in most modern houses in developed countries, there is way too much stuff. The internet is rife with advice about how to reduce clutter, how to reorganize one’s life and clean up one’s house. In my house there are thousands of objects, and objects within objects. Just take the two cars in my garage; each car has about twenty thousand parts derived from factories, quarries, and sales outlets all around the globe. And we haven’t even started with the washing machines, sinks, fridge, lawn mower, clothes, shoes (and slippers), computers, fire alarms, burglar alarms, and so on and so on. We live in a world in which we are surrounded by human-made things.

*Ibid.*: 27



Kurzweil describes the coming technological “singularity”. He quotes Von Neumann as saying, “the ever-accelerating progress of technology [...] gives the appearance of approaching some essential singularity in the history of the race beyond which human affairs, as we know them, could not continue” (Kurzweil 2005: 10). Kurzweil says:

Biological evolution and human technology both show continual acceleration, indicated by the shorter time to the next event (two billion years from the origin of life to cells; fourteen years from the PC to the World Wide Web).

Ibid.: 17

Stiegler makes a similar point. From the very beginning of modern technics, the transfer time of scientific discovery to technical invention and then to technical innovation has been considerably shortened (Stiegler 1998: 40). He goes on to quote Gille:

One hundred and two years elapsed between the discovery of the physical phenomenon applied to the photograph and to photography itself (1727-1829) whereas the transfer time was reduced to fifty-six years for the telephone, thirty-five years for radio, twelve for television, fourteen for radar, six for the uranium bomb and five for the transistor. This reduction in delays is a result of what Weber, Marcuse, and Habermas call “rationalization”. Its price is a totally new relation between science and technics (and politics), established by way of the economy.

Ibid.: 40

It is Kurzweil’s view that a technological singularity is coming. He defines it as a “future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed” (Kurzweil 2005: 7). We might ask, how does this differ from the profound effects of previous historical discoveries and inventions on human life? The answer according to Kurzweil is the pace of that change. The rate of change of our human-created technology is “accelerating and its powers are expanding at an exponential pace. Exponential growth is deceptive. It starts out almost imperceptibly and then explodes with unexpected fury” (ibid.: 7-8). Kurzweil argues that:

[w]ithin several decades information-based technologies will encompass all human knowledge and proficiency, ultimately including the pattern-recognition powers, problem-solving skills, and emotional and moral intelligence of the human brain itself.

Ibid.: 8

Stiegler thinks that the consequences of the current exponential increase in rate of technical change is not fully appreciated by humanity. It is leading to disorientation. Indeed, the whole of the second volume of his three-volume *Technics and Time* is entitled *Technics and Time 2: Disorientation* (Stiegler 2009). In light of the rapid pace of technical development which has taken place in the latter half of the twentieth century and the first two decades of the twenty-first, James says that:

[i]f Stiegler is correct that historical epochs, together with the individual and collective forms of time consciousness which define them, are constituted in and through technical systems and prosthetics, then the stakes of this analysis are high.

James 2012a: 68-69

Stiegler identifies this contemporary moment as a point in history where this “culture of presence” (James 2012a: 69) is being suspended in virtue of the current rapid rate of increase in technicity, the “specific temporality or time consciousness produced by emergent information and communication technologies and digital media” (ibid.: 69). Our forebears were not so disoriented:

An ordinary person of two centuries ago could expect to die in the bed in which he had been born. He lived on a virtually changeless diet, eaten from a bowl that would be passed on to his grandchildren. Through seasons, years, generations, his surroundings, possessions, and daily routines were close to identical. The world appeared to be absolutely stable; change was such an exception that it seemed to be an illusion.

Stiegler 2009: 1

Stiegler tells us that it is in the context of that world that we are now trying to think anew an “*other* world”. It is a world that first appeared at the beginning of the nineteenth century. A world in which “stability had become the exception and change the rule” (ibid.). Stiegler says that, “[t]echnics, as technology and techno-science is the chief reason for this reversal” (ibid.). So historical *movement* only happens in conjunction with technical *movement*. It is “a process in which dominant technical systems develop into something new and are then subsequently accompanied by the emergence of new cultural forms which are programmed by those new systems” (James 2012a: 69). It is a world where

techno-genesis is structurally prior to socio-genesis (Stiegler 2009: 2). This cultural reprogramming is called “epochal redoubling [*redoublement éepochale*]” (James 2012a: 69). The French *redoublement* carries the sense of doubling, beginning once again, overhauling or renewing. James tells us that it also resonates with the verb *doubler* meaning to double, repeat, accelerate or overtake (as in a car) (ibid.). This accelerating doubling knits very well with Kurzweil’s description of the exponential growth in technology. Stiegler says that in our current state of disorientation we are in danger of losing our sense of time itself. He says, “Which idea of today, then, would (improbably) program the epochal redoubling of différent analogic, numeric, and biological identities, thus throwing into crisis the presence of which “*today*” consists” (Stiegler 2009: 61)? James says that Stiegler’s question is urgent because “new scientific modes are already reprogramming our ways of retaining the past and anticipating the future and have already begun to inaugurate a different experience of time, a new and different mode of temporalization” (James 2012a: 69). And it is hard to gainsay it. In a world where we are able to download almost any piece of information from the web, where we can access at the click of a mouse every piece of music ever recorded, and talk to our diasporic families by FaceTime. It is a world of “decommunitization” (Stiegler 2009: 90). It is, Stiegler says, an unstructured world, a world “deterritorialized” (ibid.):

Deterritorialisation occurs as a shared structure of perception articulated in the disembodied or virtualised ‘real-time’ of digital communication. It occurs in the quasi-instantaneity of transmission across the globe which annihilates the geographic situatedness just as it annihilates temporal delays.

James 2012a: 71

In our increasingly globalised world, there is a danger in the potential homogenisation of memory. James says:

It is a question of the perception of the present, of memory (retention) and of purposiveness (protention) being formed en masse and more or less homogeneously by information and media technology in the service of markets and economic productivity.

Ibid.: 73

Stiegler also says, “the current prosthetization of consciousness, the systematic industrialisation of the entirety of retention devices, is an obstacle to the very individuation process of which consciousness consists” (quoted in *ibid.*). His original text was written in 1994, at the dawn of the web. How much more true is his argument now (2018) in the modern technological hegemony? Stiegler says that:

Technological societies are no longer *individuated*: they are in fact profoundly hostile to the individuation process, to all heterogeneity, to singularity, and to the exception. These are not societies of individuals and exceptions (which is always a diachrony in which all individuality is exceptional, a-synchronic), but rather societies of *hypermasses* and of deception. As we will see, they are not even societies of invention but mimetic and adaptive aggregations.

Stiegler 2011: 101

If Stiegler’s analysis is true, there would certainly be implications for all aspects of society and social discourse, implications from which aesthetics will not be immune. Is there an alternative path through this gloomy technical scenario? Stiegler cites the case of cinema. In his commentary James says that cinema exemplifies the way in which technical-temporal objects can constitute consciousness at the level of the collective or mass, wherein it is shaped in a more or less homogeneous fashion (James 2012a: 75). He says, “There is a tension here between the synchronizing-homogenizing power of the technical-temporal object and its affective, singularising dimensions” (*ibid.*: 75-76). And so, even in the forceful face of the homogenising tendencies of the technological presentation of temporal objects (art objects), there is still enough societal room for the individual:

Consciousness is affected in general by phenomena presented to it, but this affect occurs in a special way with temporal objects. This is important to us in the current investigation because cinema, like melody, is a temporal object. Understanding the singular way in which temporal objects affect consciousness means beginning to understand what gives cinema its specificity, its force, and its means of transforming life [...].

Stiegler 2011: 17

James tells us that in order to understand this “double potentiality” of mass communications technology, “technology which has the potential to be both homogenizing *and* singularizing, then we can begin to develop strategies to engage with the totalling

culture of hyper-industrialised society differently and transform our experiences of that culture” (James 2012a: 76). Such an “uncoupling” of cultural production from hegemony of the “exigencies of economic production” would be a space for thought, reflection and action rather than a space ever more oriented towards the necessities of passive consumption (ibid.):

Such a politics must be a politics of technics, a practical thought of becoming capable of furnishing it with an idea projecting into the future in which becoming is the “agent” and where nothing remains “more reprehensible than to derive the laws prescribing what *ought to be done* from what is *done*, or to impose upon them the limits by which the latter is circumscribed,” the very essence of cynicism and renunciation, and the discourse of mimeticism and adaptation that is indeed condemnable in being used as an alibi for facts against rights.

Stiegler 2011: 198-199

This plea from Stiegler is for a society which can maintain its individualising creative faculties in the face of the homogenising totalitarianism of the globalised-industrial-techno monolith.<sup>66</sup> It is a plea for (in Deleuzian terms) de-stratification, for deterritorialisation. Vitale points out that all such totalitarian monoliths ultimately succumb to deterritorialising forces because the stasis of stratification leads to ossification and paralysis (Vitale 2014 *passim*). But can society simply wait until the hegemony of the techno-edifice crumbles? Stiegler says, “above all it is a question of *providing weapons*: of making an arsenal of concepts from a network of questions with a view to pursuing a struggle” (quoted in James 2012a: 77). But what are these metaphorical weapons and how are they to be used in the “struggle”? Stiegler pursues a critique of consumer societies which are driven by the exigencies of mass markets (ibid.: 78). He says that these exigential drives interfere with “primary narcissism” (quoted in ibid.). He defines this as “the primary desiring identifications through which we achieve a fully individuated and differentiated sense of self” (quoted in ibid.). This is his argument:

If a whole society and its cultural production are geared towards the desire for and consumption of mass-produced objects, then ‘individuals are deprived of their capacity for aesthetic attachment to singularities, to singular objects’. It follows from this standardization of objects of desire, and

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<sup>66</sup> See esp. Stiegler 2019

therefore of desire itself, that there will emerge a generalized '*loss of symbolic participation*, which is also a sort of *symbolic and affective congestion*, that is to say ... a structural loss of individuation.'

Quoted in *ibid.*

Perhaps there is an element of Stiegler tilting at windmills here. When Stiegler claims that our current society ails in a state of "symbolic misery" (quoted in *ibid.*), he says:

So by symbolic misery I understand the *loss of individuation* that results from the *loss of participation* in the *production of symbols* ... And I suppose the current state of a generalized loss of individuation can only lead to a *symbolic collapse*, that is to say a collapse of desire.

Quoted in *ibid.*

James claims that Stiegler's view may be criticised as coming from a position of left-leaning intellectual elitism, the tendencies of the Frankfurt School of cultural theory (*ibid.*), a view which:

underestimates human agency and ignores the fact that mass culture may be so successful simply because people genuinely enjoy its products and do so without alienation or false consciousness. In this context, Stiegler's emphasis on singularity, intensity and desire would simply be a Nietzschean-inspired elitism which cannot account for the pleasure mass cultural products give and for the fact that they do so within the context of more or less fulfilled social relationships rather than at their expense.

*Ibid.*: 79

This refutation of the notion of "struggle" and the malign influence of the Frankfurt School would certainly be a view Scruton would agree with.<sup>67</sup>

The foregoing discussion is a general case for regarding humans as cyborgs in the symbiotic sense described by Clark. I continue this abstract machine with a rhizoanalysis of some of the specifics of cyborg musicking insofar as the human/technics symbiosis is evidenced in the abstract machines which are the vignettes' subjects.

It was Clarke who said that any sufficiently advanced technology is indistinguishable from magic (Clarke 2018). I suggest that all of human technology starts out as seemingly magical, before familiarity with its use sees it slip into a ubiquitous every-day relationship, such that we do not notice its technicity any longer. It becomes a process of symbiotic

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<sup>67</sup> See Scruton 2015.

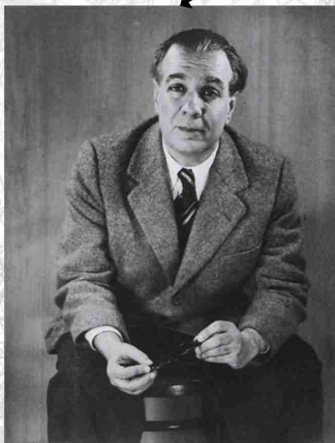
adoption. Both Whiteside and Trandafilovski describe their habitual use of pen and paper in the early stages of their compositional practice. The institution of those particular note-writing assemblages serves two purposes simultaneously. Firstly, the act of writing on paper, as Whiteside says, “[...] means I’m not constrained by the software I am writing in” (W1). Trandafilovski says, “I always write the music, initially, by hand, and only transfer it to Sibelius later. In this respect, using technology in the initial stages of producing a work would be a constraint for me” (T1). Both of them are saying that the ubiquity and ease of use of the pen and paper method of writing allows them to compose more freely than if they were using more modern technology. Secondly, but not specifically mentioned by either of them, the recording of the compositional product on paper is a simple exteriorisation of the cognitive process of composition. It is akin to Clark’s and Chalmers’s description of the use of Otto’s Filofax. Each act of musical writing-down adds to the epiphylogenetic processes of human development described by Stiegler. To qualify Tomlinson’s phrase quoted above (“biocultural evolution”), our cyborgian development may be termed *biotechnical* evolution. Musicking is not possible without recourse to technicity. Some aspects of the musicking of the vignettes’ subjects would be impossible without using modern computer-based technologies. Here are three examples which nomadically de- and reterritorialise the human/technology symbiont. They demonstrate how a rhizomatic thinking allows what Masny calls new “literacies” (Masny 2010: 2’08”) to emerge. Literacies are, she says, texts in the broadest of senses, and can include art and music (ibid.). Whiteside says this about one aspect of his electro-acoustic compositions, “For the EA pieces I use technology because it is the easiest tool to create the sound worlds I want. Some of the stuff would be possible in the analogue domain but a lot of the spectral shaping wouldn’t be” (W1). Regarding integrating computer-generated electronic sounds, “My aim with the electronic element is to integrate it as much into the piece and to be as stand alone as possible. This led me to exploring physical technological interaction

with my Solo for Viola D'amore and Electronics. The electronics are controlled by a pressure sensor of the back of the player's first finger" (ibid.). McLean's algorave music simply could not be performed in the live environment without computer assistance and the application of a bespoke computer language. He says, "Well the technology I use (tidalcycles) is a language, it has constraints but as the originator of the language I've kind of chosen those constraints. The terse nature of TidalCycles (and the Haskell language it's embedded in) contributes to its level of expressivity that I wrote about above" (M1).

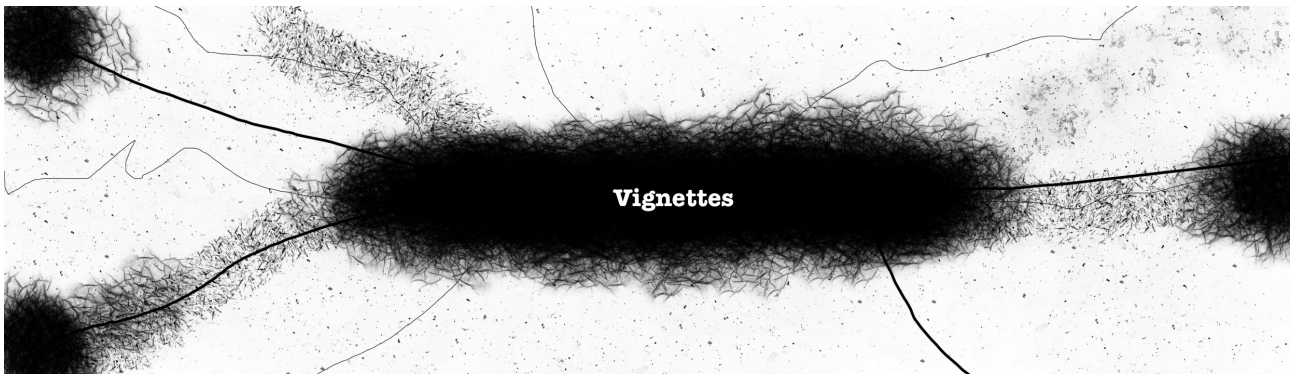
These brief examples relate to the essential nature of the reterritorialised human/technology symbiosis in the production of the musics discussed. Similar points could be made with respect to the recording, dissemination, and reception of the musics. Examples are given in the vignettes material and bibliographic leads.



## Intermezzo VI



For description see pp. 229-233



—————> and... and... and... you arrive here on a line of flight...

## Vignettes

The original research proposal for this work envisioned ethnographic work with musicians in order to obtain data about their respective music-making practices, so that those data might be analysed in the light of the philosophical discussion. My initial thoughts were to work with members of a string quartet and also various other musicians whose work involved, to a lesser or greater degree, the incorporation of modern technologies into their practice. It became apparent by the end of the first year of the research that a thorough-going ethnographic study, involving fieldwork and participation in those musical practices was going to be unfeasible, not least in terms of the time available for the data-gathering stage and the analysis of those data. Following discussions with my supervisors, I decided to undertake four ethnographic vignette studies of musicians. This work would entail some face to face contact, questionnaires and a broadly netnographic<sup>68</sup> study of materials available on the internet and in other public domains.

Masny tells us that vignettes are part of an assemblage (2013: 343). While this ~~dissertation~~-assemblage contains an “empirical component” (ibid.) (i.e., what follows in this abstract machine), it is, overall, “not an empirical study in a conventional way. The data deterritorialise and reterritorialise. They are vignettes” (ibid.). The overall research assemblage includes the vignettes, the research participants, the researcher, the reader, and the text itself. There are lines of flight and overlaps between them which constantly

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<sup>68</sup> Pace Kozinets 2010.

change over (and with) time. Beyond the “simple” choice of whom to include as the subjects of the vignettes, *what* to include was/is a dynamic process. The data which appear here are/become what St Pierre calls “transgressive” (ibid.). Parts of each vignette have:

[a]ffected and disrupted the research assemblage. The combination of disruption and affect or reading intensively and immanently is a rhizomatic process that creates a line of deterritorialization and becoming.

Ibid.

There is a sense of allowing the data to ask their own questions.

The four musicians I have worked with were chosen by me in the manner outlined below. I do not claim any statistical significance to the data they have provided, neither do they represent a wide social or gender variable set. This ~~dissertation~~-abstract machine does not represent a conventional empirical study.

The participants are:

- Matthew Whiteside, a composer
- Mihailo Trandavilofski, a violinist, composer and teacher
- Julian Broadhurst, a composer and percussionist
- Alex McLean, a composer and performer of live-coded music

I shall introduce each of them below, with a few biographical paragraphs. Since they feature disproportionately heavily in quotes and references in the text throughout the ~~dissertation~~-assemblage, I shall make references to them with a shorthand code, rather than the standard Harvard referencing system which I otherwise use. I hope that this method of referencing will make the text flow more easily for the reader. That system is as follows. I shall use the initial of each of my participants followed by a cardinal numeral, e.g., (W1), (W2), (W3), etc.. Full references can be found in a separate section of the bibliography.

### *Matthew Whiteside*

Matthew comes from Belfast, where he grew up and studied, but is now based in Glasgow. He is described as a “cerebral composer and sound designer who’s creating classical-crossover works to challenge the 21st century consensus” (W3). He played brass (euphonium) at school, but never really saw himself as a performer. He started composing whilst still at school and continued his practice at Queen’s University Belfast, where he became aware of the possibility of combining technology with traditional instruments (W2). He was commissioned to write an opera for Scottish Opera, which was premièred in 2018. He has worked on a sound installation piece with the film-maker and choreographer Marisa Zanotti. He has composed a film score and has also written the music for a BBC documentary presented by Michael Palin (ibid.). He cites rock, metal, electronica, glitch music, spectralism and minimalism as influences on his own work (ibid.).

### *Mihailo Trandafilovski*

Mihailo comes from what is now North Macedonia (formerly part of Yugoslavia). He had a very music-oriented early education in Skopje. He attended a summer music camp in the United States and after briefly attending the Academy of Music in Macedonia, he transferred to Michigan State University where he took a B.Mus degree and also began composing (T1). He continued his postgraduate studies (in composition) in London at the Royal College of Music (M.Mus., D.Mus.). He was awarded scholarships at both institutions and his studies and research have also been supported, amongst others, by the Open Society Institute, the Macedonian Ministries of Science and Culture and the British Government (with a *Chevening* scholarship). His main performing work has latterly been with the renowned Kreutzer Quartet. This work has involved a number of recordings from the standard repertoire and also new commissions. A particular interest is the application of new music to pedagogy, which was the subject of his doctoral research. He has led a

number of shared projects among the arts, both in the UK and internationally, promoting contemporary artistic creativity to a wider audience (ibid.).

### *Julian Broadhurst*

Julian is a prolific composer and performer who has recorded and published online over 130 album length pieces. He is principally a percussionist, but also writes for electronics, strings and other instruments. Some of the recordings are collaborations with string players and wind players. Julian hails from Leicester and now lives in Derby. He has a degree in philosophy from the University of Warwick. When he was younger he worked as an artist. Commissioned works hang in the Department of Chemistry building at the University of Oxford and in Liverpool Cathedral. He was the founder of a sub-genre of visual art called Elementalism. He says this, “I set up my own recording facilities, imaginatively titled the 'Drum Studio,' later upgraded to the 'Isabel Studio,' where I spend hundreds of hours experimenting, recording, mastering, then issuing recordings over five areas of research interest or Tranches” (B1).

### *Alex McLean*

In his Facebook biography Alex describes himself as “Live coder, algoraver, researcher, software artist, collaborator, festival curator, generalist” (M1). Alex is interested in patterns, and particularly, in the ability of making musical patterns with computers. He started experimenting with live-coding of sound production in about 2000. Playing with collaborators at festivals in Europe and around the world, his practice has developed with the production of his own software, Tidal Cycles. He was a founder of the international live-coding organisation TOPLAP<sup>69</sup> and a founder of the Algorave<sup>70</sup> movement, which now has offshoots in all parts of the world. The Algorave sound that his program produces owes a debt to Techno music as a genre. He says of the music, “I’m also taking techno as

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<sup>69</sup> See <http://toplap.org/about/>

<sup>70</sup> See <http://algorave.com>

a starting point, and seeing how far I can stretch it while bringing people with me. But this also is part of the essence of techno I think, keeping that slightly alien, cerebral feel while also fulfilling the needs of the moving body” (ibid.). Alex is better known to the Algorave and festival world by his stage name of Yaxu.

### *The methodology for the ethnography work*

As befits a rhizomatic approach, I began working with each of my participants in different ways. Matthew Whiteside got in touch with me by responding to various tweets I had made concerning the current contemporary music world. This initiated a Facebook and email correspondence between us which continues to the present. I was not *au fait* with the world of current string quartets, but I knew somebody who was; Professor Amanda Bayley of Bath Spa University. Amanda had done some research of her own with the Kreutzer Quartet. When I asked her whether she could introduce me to someone from a string quartet, she approached Mihailo Trandafilovski on my behalf. Following an email correspondence, Mihailo declared himself happy to help with my research. Julian Broadhurst contacted me by responding to tweets concerning my research which I had been making on a humanities Twitter account.<sup>71</sup> We corresponded on Facebook and by email and I had a long telephone conversation with him before he agreed to assist with the research. I met Alex McLean at a conference<sup>72</sup> in Sheffield in 2015, where we were both presenting papers. We talked about our respective interests over lunch. I was struck by Alex’s reliance on computers and software in his music-making and so his work seemed a rich vein for my research to mine. He agreed to help and we subsequently corresponded by email and social media channels. I have also been to see Alex perform in the live environment at an Algorave held in Brighton.

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<sup>71</sup> See <http://www.wethehumanities.org> and @wethehumanities (now defunct).

<sup>72</sup> See <https://humancomputermusicphilosophy.wordpress.com/events/workshop27may2015/report/>

Before contacting any of my would-be participants, I had received permission to undertake the research on human subjects from the Open University's Human Research Ethics Committee.<sup>73</sup> Each of my participants was sent an explanatory letter<sup>74</sup> concerning the research asking for their formal consent to take part and explaining their rights and my (and the university's) responsibilities. Each of them agreed to the request and gave formal consent. Each of them was asked whether they consented to being quoted in the thesis (dissertation-assemblage). Each agreed. Each was asked whether they consented to the quotes being attributable. Each consented to this. All four of the participants agreed to answer a questionnaire. I asked each of them the same four questions:

- *Musical background*

Explain how you came to be a musician/composer. Give details of your musical 'history'. Outline your playing, performing, composing, recording activities.

- *Musical influences*

What influences have had an effect upon the ways in which you make music and the actual music you produce?

- *Technology*

Considering technology in its very broadest senses, please outline how technology constrains and enables your music.

- *Aesthetics*

Please say what you consider to be the important aesthetic aspects of your music. How do you decide what they are to be and how do you achieve them?

Whiteside, Trandafilovski and McLean each responded with about 1,500 words under my four very open and broad headings. Each of them also told me that I was welcome to

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<sup>73</sup> See Appendix A

<sup>74</sup> See Appendix B



ask them supplementary questions by way of follow-up or clarification. I have done so, and those questions and answers are documented in email responses (and, occasionally, Twitter and Facebook messages). Broadhurst decided not to follow my questionnaire template, but, taking the questions as starting prompts, he sent me a series of replies which were set in the form of a Platonic dialogue, with me as his imagined interlocutor. He does cover the questions I initially posed and much, much, more, but the “answers” have perforce been teased out from his many interesting words.

I am extremely grateful to my participants, especially for allowing me to quote them in my subsequent analysis and commentary on the philosophy of current music. What follows in this chapter/abstract machine is some rhizoanalysis of my questions, their answers and other material available in the public domain.

As I said above, the notional subjects of these vignettes are a small number of musickers. Honan also had to consider the issue of a small set of research participants (also four). She says, “I now turn my gaze onto another recurring problem that has assailed me as I write this thesis; that of the validity of my investigation, or the question related to the question I discussed above: how does a study of ‘only two’<sup>75</sup> teachers make ‘rigorous’ and ‘valid’ claims” (Honan 2001: 17)? The solution to this “problem” is to treat it as a non-problem, in this sense; she does not attempt to give her analysis of the data what Scheurich calls “imperial knowledge” (1997: 90 quoted in *ibid.*: 18). She says:

Rather than engaging in the roasting of the Other, the transformation of the raw materials into an homogenised Same, I have been at pains throughout this thesis to draw attention to the particularity of my suggestions, the tentativeness, the (im)plausability of my readings. The tentativeness and partiality of my suggestions is an attempt to disrupt what Scheurich names as “imperial validity” (1997, p. 85), where the researcher attempts to control the researched, to spread her imperial tentacles across and over the strangled research subject. I make no claims to historical exactness, no claims of truth, or imperial knowledge. I am always conscious, even while being (un)conscious, of the possibilities of ‘new masks’ of imperialism appearing in my writing. As Scheurich says, “I am deeply troubled by the anonymous imperial violence that slips quietly and invisibly into our (my) best intentions and practices, and, even, into our (my) transformational

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<sup>75</sup> And two interpreters, four in all.



yearnings" (1997, p. 90). The attempts I have made throughout this thesis to reflexively dwell on the particular ways I have constructed my (mis)readings, and the particular subject positions I take up during those (mis)readings, are my attempts at disrupting, at making visible, such invisible and silent slippages.

Ibid.

Sellers was also concerned about the issue of, what might be called in conventional research methodologies, a small data-set. Sellers's work is in the field of early years education research. She quotes another doctoral thesis in this field (Guss 2001) which uses a data-set of only three video recordings, which total just fifty minutes' worth of children's play activity. This leads Sellers to say, "This affirmed that the rhizoanalysis is indeed about multidimensional intensities (Deleuze & Guattari, 1987) and that it was not necessary to add more and more data to elaborate understandings, rather it was about generating (a) milieu(s) of mo(ve)ments from/with/in/of liminal spaces towards thresholds of understandings" (Sellers 2009: 214). In a sense, validity in rhizoanalysis comes not so much from the quantity of any data-sets, but rather from the richness of them; and data is (potentially) infinitely rich within a rhizome. Regarding disrupting those silent slippages which Honan mentions, in relation to the research participants, it is worth bearing this in mind.

Wyatt and Davies say, with respect to university approval for research with human subjects, "What ethics committees do is more like risk-management, or a set of practices that provides the grounds for a legal defence against any research participant who might later claim to have been violated in some way" (in Wyatt, Gale, Gannon and Davies 2011: 107). The problem with this approach is that, potentially, it sets the research participant apart from the researcher and the research, by creating an inbuilt othering. Wyatt and Davies say, "On the surface, what it produces is protection of the weak from abusive interference; the research participant becomes, by definition, a 'fundamentally passive, fragile and mortal entity... a potential victim to be protected'" (Halward 2002: xii quoted in Wyatt, Gale, Gannon and Davies 2011: 108). Is there anything wrong with such an

approach? Does it affect the nature of the relationship between researcher and researched? They say:

The problem such an ethics brings with itself is that it forecloses the line of flight that enables us to imagine ourselves other-wise, to imagine the research participants outside the categories they have been enclosed in. They become the objects of the researcher's gaze, a gaze that fixes them in a common-sense emplacement of vulnerability; a vulnerability in stark contrast to the researcher's power to know. Their irreducible alterity, their difference, is set in place by the categorisation of them as *this* kind of person from *that* kind of background. Such categorisations place the other as discrete and distinct from the self of the researcher, with the difference lying in the Other.

Ibid.: 108

It is such a potential for foreclosing the lines of flight that I seek to mitigate in my dealings with the research participants, by having a reciprocal and engaging relationship with them. This was done to minimise the danger of "othering", and to avoid slipping into Scheurich's "imperial violence".

### *On Rhizoanalysis*

Rhizoanalysis is ~~the~~a process of questioning, reading, collecting ~~data~~, writing, thinking, all as part of a rhizome and from an *intermezzo* point. It is always contestable and always unfinished (Sellers 2009: 208), and... and...and... . Masny points out that, "There are different ways to rhizoanalyze" (Alverman 2001; Dufresne 2002; Eakle 2007; Leander & Rowe 2006; Waterhouse 2011, quoted in Masny 2013: 339). She adds that, "For Deleuze and Guattari (1994), concepts are constantly created through deterritorialisation and in this context methodology is no exception. Methodology is deterritorialized and reterritorialized: rhizoanalysis" (Masny 2013: 340). Research, according to Masny, is itself an assemblage. She says that, "[...] a rhizome is neither metaphor nor figuration" (ibid.). She quotes Mazzei and McCoy, who:

In a section of their article entitled "against metaphor, against easy understanding," invite researchers to experiment with the idea "that thinking with Deleuze is not merely to 'use' select metaphors presented by Deleuze and Guattari and to illustrate these metaphors with examples from data, but to **think** with Deleuzian concepts that might produce previously unthought questions, practice, and knowledge.

Mazzei and McCoy 2010, quoted in Masny 2013: 346 fn 1 (emphasis added)

My emphasis of “think” in the above quote is key to rhizoanalysis. It is a reminder to researchers that to approach the process of research and the data produced by the research as if the research questions and the data have some fixed meaning in the world which the application of Deleuzo-Guattarian “methodology” might unlock, is flawed. Such an approach would imply that there is a foundationalist and transcendent form of meaning that is there to be interpreted (Masny 2013: 341). Deleuze counsels against looking for signification in a text. There are, he says, two ways to read:

You either see it as a book looking for something inside and start looking for what it signifies...And you annotate and interpret and question. The other way: you see the book as a little non-signifying machine and the only question is ‘Does it work, and how does it work?’ How does it work for you? If it doesn’t work, if nothing works, you try another book. . . . something comes through or it doesn’t. There is nothing to explain, nothing to understand, nothing to interpret. It is like plugging into a circuit.

Deleuze 1995: 7-9 quoted in *ibid.*: 340

A rhizomatic approach is required to ~~both~~ the research seed and the data. It requires that, from a Deleuzian perspective, a different way of conceptualising the ~~coding~~ of data from that encountered in what St.Pierre calls “conventional humanist qualitative research” (in *ibid.*: 341) should be found. That conventional approach to research methodology (data, method, member check, peer debriefing) (*ibid.*) implies a bounded, signifying text, research with a beginning and an end. Rather:

Rhizoanalysis is an assemblage (participants, researchers, research assistants, research settings, etc.) that disrupts or deterritorializes *in situ*. Each time the composition of the assemblage differs. It is difference that allows for creation and invention to occur continuously.

*Ibid.*

Others have written of the dangers of convention in acquiring and analysing ~~data~~. As Eisner puts it:

Despite my commitment to generating a rhizo text and to rhizoanalysis, challenges arose, mostly in the form of the pervasiveness of the ‘ruthlessly linear nature of the narrative of knowledge production in research methodology’ (St.Pierre, 1997b, p. 179)<sup>76</sup> inherent in the expectations of conventionally informed methods of producing data, analysing, interpreting and reaching theoretical conclusions. Although qualitative poststructuralist methodologies disrupt positivist expectations, even in justifying choosing them, strategies utilised are imbued with lingering under/over/tones of scientifically

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<sup>76</sup> Also quoted on p 26.

structured thought and thinking. A rhizo approach, reflecting complexity and chaos theory, eased my way through as I negotiated passages of lines of flight as they appeared from/with/in the shadows, from the middle as I perceived them in the journey ahead, in the rear vision mirror and all round within my peripheral vision. Also, operating with/in a complexity of middles~muddles, obvious to me in my thinking, was eased by my artistic and creative capacities (Eisner, 1997).

Quoted in Sellers 2009: 202

It is clear that a rhizoanalytical approach to research and writing cannot be done in discrete silos of activity. It is all of a piece. Rhizoanalysis as methodology/way of thinking is not designed to produce results “of any other kind than the production of this text” (Honan 2001: 19). It does not start when the project is first mooted and it does not end when the ~~dissertation~~-assemblage is submitted. Lines of flight do not cease to operate at an arbitrary point; there is no ~~final~~ reterritorialisation. Sellers says of her own work, “Other ways of reading this juxtaposition continue to (e)merge only hours before submitting this ~~thesis~~-assemblage – letting it go as it is – while reassuring myself that it is barely a beginning, that there are papers to be written, in which the exploration will continue...” (Sellers 2009: 213fn). As this ~~dissertation~~-assemblage appears from the lines of flight which constitute this ~~particular~~ rhizome, it is often very difficult to know what is original and what is condensation/distillation/amalgamation/word-meme juxtaposition.

Honan says:

I would describe the relationship between this text and the texts that I have read as being like a palimpsest, in that sometimes my new words obscure the old writings, while at other times the texts that have already been written appear on the surface, and still at other times, the words I type on the screen mingle with the letters of words/works that have come before.

Honan 2001: 20

I wrote in the ~~Foremachine chapter~~/abstract machine about the collaborative nature of all writing and the ‘baggage’ that the author and research participants (and reader) all bring to the rhizome. Indeed, the component parts of this rhizome are themselves rhizomatic assemblages. There are within it *inter alia*, this writing, internet pages, conversations, gig visits, written questionnaires and responses, the ‘baggage’ of literature, and future speculations. In the remainder of this Vignettes ~~chapter~~/abstract machine, I reproduce

selections from these ~~texts~~. How is it possible to find the middles of this/these rhizome(s)?

It is desirable to look for the middles, because:

Looking for middles, rather than beginnings and endings, make it possible to decenter key linkages and find new ones, not by combining old ones in new ways, but by remaining open to the proliferation of ruptures and discontinuities that in turn create other linkages (Alvermann, 2000: 118).

Quoted in Honan 2001: 34

Each of these vignette-assemblages is a rhizome. As each one is read, think middle.

Remember that there is no correct way to read them; treat each reading as a “scrupulous plausible misreading” (Spivak 1996: 45 quoted in *ibid.*: 35). The connections (lines of flight) will emerge from the (mis)readings. The way this ~~dissertation~~-assemblage is presented provides countless plausible (mis)readings of the rhizoanalysis of the ~~data/texts~~.

In the four vignette abstract machines which follow, I reproduce in full the responses to my questionnaire which each of the participants provided, with the exception of Julian Broadhurst. Broadhurst’s textual replies run to many thousands of words and for reasons of space must, therefore, be selected from.<sup>77</sup> Where I include extracts of Broadhurst’s text, I reproduce it exactly as it was sent to me, because he stipulated that he must be quoted verbatim. All four of my respondents also sent me links to other aspects of their work and interests, including reference to CD liner notes (Trandafilovski), concert performances (Whiteside), software programs (McLean), and details of other collaborators (Broadhurst). There is a very great deal of related material available on the internet concerning all four of the respondents. I shall include aspects of this material below and reference to some of it will appear in the rhizoanalysis and rhizoconstruction of the other abstract machines.

### ***Matthew Whiteside***

#### *Musical background*

*Explain how you came to be a musician/composer. Give details of your musical ‘history’. Outline your playing, performing, composing, recording activities.*

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<sup>77</sup> But see Appendix C for the full material, p. 236 *et seq.*

I started playing the Euphonium when I was about 7 or 8. I'm not sure why I started it but carried it on through to the end of secondary school. Toward the end (around GCSE/AS Level) I was only doing it because of the compulsory performance module in order to keep studying music. I never really enjoyed performing even though I was in the school orchestra for most of the time. I also began lessons on cello and piano before leaving school.

Throughout my time at school I was aiming toward either law or physics and when choosing my subjects for GCSEs it was a very close call between continuing Latin or music. It was during my GCSEs I realised that composers were still alive, I could write music and gradually became aware of new music. However, that didn't change my aim for law. By this time I'd decided against physics because the AS level course wasn't interesting enough (it only did Newtonian physics and didn't touch on quantum mechanics at all).

Gradually between GCSEs and leaving school my interest in music and specifically composition grew. Around April in my final year in school I decided I wanted to be a composer however I had applied to and been accepted at a number of universities for law. I rung round them all to see which ones could change my offer over to music and didn't require performance, I then went to Queen's University. It was only at QUB I discovered electroacoustic music and the possibility of combining technology with traditional instruments.

The first time I remember actively writing anything and really enjoying it was a theme and variations on a traditional Irish tune. From there music started to take more and more of my day sketching ideas in class and spending as much time in the music department as possible. I was also always the person the teacher called on to fix the midi patching or help setup the sound systems for concerts. I seemed to just understand how all the tech worked.

As some general info on my early years my Grandfather introduced me to Classic FM when it was launched and my parents took me to the opera every year from when I was 6 and went to Ulster Orchestra concerts occasionally. I always wanted to understand how things worked generally by helping my Dad fix the car or wiring plugs, taking apart and putting things back together or building crystal radios and computers.

### *Musical influences*

*What influences have had an effect upon the ways in which you make music and the actual music you produce?*

Rock, metal, electronica, glitch music, spectralism and minimalism. All of these genres seep into every piece to a greater or lesser degree.

I'm not particularly fussed on classical music between about 1700 and 1900. There are exceptions but I'd rather listen to either pre 1700s or post 1900s.

### *Technology*

*Considering technology in its very broadest senses, please outline how technology constrains and enables your music.*

Every piece I start, I start with pen and paper. This means I'm not constrained by the software I am writing in. Once I get a clear sense of the piece I move over to Sibelius for composition, typesetting and editing pacing. Often when I'm writing a solo piece the music will be hand-written right to the final draft or sometimes is completely handwritten and never typeset. Even though I use technology greater in my work I still use pen and paper. Technology is a tool to use when it is right not something that should be used at all times.

This is also very true for my electroacoustic pieces and instrument + live electronics. For the EA pieces I use technology because it is the easiest tool to create the sound worlds I want. Some of the stuff would be possible in the analogue domain but a lot of the spectral shaping wouldn't be. As a Pro Tools session is freer than a Sibelius score it doesn't feel like it has the same constraints as Sibelius. I do plan pieces by hand but only very roughly as I can place stuff where I want on the PT session which is what I like about writing dots by hand.

With inst+live this is for me always an extension or accompaniment to the instrument. I have no intention to ever write an instrument + tape piece as I feel that puts the player at a disadvantage to the technology (they must hit x quaver at 43.45secs or it will be wrong) whereas both player and electronics can respond to each other with live electronics. In *Ulation* I built a patch that actively listened to the player making decisions based on how closely it thought what it was hearing matched 4 sounds it was listening for. Emma Lloyd, who has played it numerous times and recorded it, has said it feels like playing with a real person because it's broadly predictable but often subtly different.

My aim with the electronic element is to integrate it as much into the piece and to be as stand alone as possible. This led me to exploring physical technological interaction with my Solo for Viola D'amore and Electronics. The electronics are controlled by a pressure sensor of the back of the player's first finger.

For a recent piece *Always Ever Unknowable* I used spectral analysis running on a computer to work out the spectra of the Glasgow University Bells which I was using as tonal centers for the work. I haven't got an ok from all the players yet to post it on Soundcloud but you can hear it here <https://www.dropbox.com/s/5wtlfm0x2xy9zcf/Always%20Ever%20Unknowable.mp3?dl=0> (W12).

Soundcloud, YouTube and the like are very useful for disseminating music to a wider audience. There have been performances of my music I would not have received if it wasn't for technology and the internet, likewise I wouldn't be taking part in this questionnaire if it wasn't for Twitter. This is also true of trying to distribute my album, without digital distribution getting it to people would have been a lot harder and possibly impossible to do on my own without a label.

Technology is both a constraint and a liberator. It allows me to create sounds I couldn't have made or even imagine in the analogue domain. This then feeds into the instrumental writing where I ask players to perform digital techniques - my Quartet No. 3 opens with the instruction 'a little pointed with glitchy tension' (a reference to the glitch music that inspired it).

I wouldn't use technology if I wasn't fascinated by the opportunities it affords but I always try to be careful not to use technology for technology's sake and when I do use it to make the physicality proportional to the sound (a keypress can create cascade of sound or one tiny thing).

## *Aesthetics*

*Please say what you consider to be the important aesthetic aspects of your music.*

*How do you decide what they are to be and how do you achieve them?*

One of my friends described my music as Spectral Minimalism (more in the sense of Feldman than Reich) and I think that's a fair summary of what I like and what I'm interested in. A different way to phrase it, and how I think about it, is sound and pacing. I am interested in using and exploring a few ideas hugely in a piece and creating an almost meditative subtle repetition but trying to create those changes at just the right moment to create the desired effect. It was never really a conscious decision to think this way about my music it just evolved over the years.

In thinking about this I've looked back at some very, very early scores and there are elements of what I see as being 'me' there from the beginning for example sustained high notes against moving figures 3 or 4 octaves below. This was before I knew what spectralism was but it's a very spectral technique.



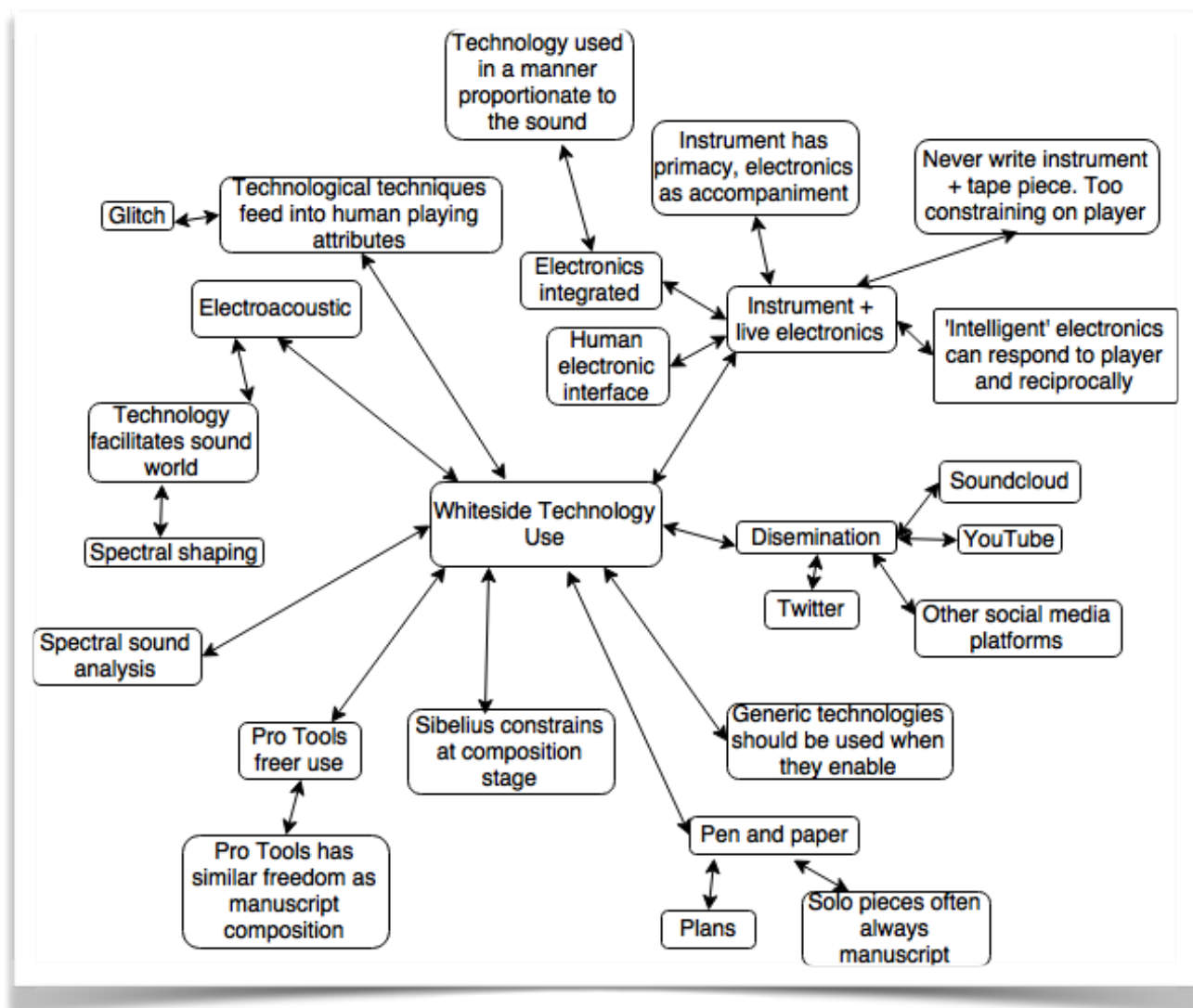


Fig. 27 Rhizoanalysis of Whiteside's technology use

Whiteside has been interviewed by various media outlets about his work. This link is to a magazine called *M* (<https://www.m-magazine.co.uk/features/interviews/interview-matthew-whiteside/>) (W2). They say, “Matthew also collaborates widely across disciplines. He was co-commissioned by Sound Festival and R-Space gallery to collaborate with visual artist Dominika Mayovich to create a sound/art interactive installation” (ibid.). That installation was called *Two Worlds Collide*, held at R-Space Gallery in 2015 (<http://www.rspacelisburn.com/two-worlds-collide/>) (W3). The description of the installations says:

The artists will present an interactive cross-discipline exhibition consisting of 6 Audio-Visual works. Each has a specific emotion in mind, inspired by an area of real or imagined landscape. Matthew and Dominika have developed a way of presentation that subverts the standard gallery experience to

increase the impact of the work and make it more inclusive, using digital technology and motion sensors, to create an interactive element to the presentation.

Ibid.

A video walk-around of the installation is available here (<https://www.youtube.com/watch?v=8LZJ8Dh6TFo>) (W4). Regarding the genesis and production of the collaboration he says:

With the installations the idea is a bit more collaborative. When working on *When Two Worlds Collide* with Dominika Mayovich, we talked about the subjects for the paintings and how the sound would work before starting to make anything. These conversations informed the sound design and music I composed. Once I had started creating the music and sound design Dominika listened to both which then informed her sketches and paintings that then fed back into my work. This cycle continued until everything was finished with both of us commenting on each other's work throughout the process.

(W3)

He says this about the installation and how it came to be:

The installation is made up of six paintings housed within individual pods each with motion sensitive sound design accompanied by *Exhibition Music*. The paintings are essentially two triptychs all broadly exploring the subject of loss. We have intentionally left the paintings untitled with no descriptions so people can view them within their own context and baggage rather than ours.

Ibid.

He talks about his work in composing film music:

For film music, it's still collaborative but the music is there to support what's happening on screen. I have asked a director to change the edit in a scene by a few seconds to match what I'd set up musically and they obliged. However I realised it was ultimately their call, if he had turned round and said 'no' I would have had to make the music work with the original cut.

Ibid.

Regarding his writing for electronics integrated with live musicians he says this in relation to his work with the flautist Carla Rees:

I'm drawn to it because it sounds really cool. I like playing around with sounds and I use electronics to create sounds that are impossible for players to do, but importantly would be impossible without the player. For example, one of the parts within the piece I'm working on for Carla will have a huge deep drone that is taken from a tongue-ram on the contra. Carla will be playing fast dynamic material which the computer will listen to and use to tweak the volume or transpose the drone just a little to make it feel alive. It means the electronics are influenced by Carla's performance in the same way an acoustic player would change their performance based on the other players.

(W3)

All of Whiteside's published and recorded music is available on Spotify (<https://open.spotify.com/artist/5O6zANklw2xYdZV9oWnpeC>) (W5)

## **Mihailo Trandafilovski**

### *Musical background*

*Explain how you came to be a musician. Give details of your musical 'history'. Outline your playing, performing, composing, recording activities.*

I was born in Macedonia (former Yugoslavia) in 1974 and started attending the elementary music school at the age of six. I do not remember whether I had a strong desire to start playing an instrument – I believe I was 'assigned' the violin at the music school, apparently because the entrance exam showed I had a very good ear. From a very young age, I practised diligently; I took part in several State competitions in Macedonia/Yugoslavia, and continued my education at the specialised High School for Music in Skopje. I spent a summer at a music camp in Interlochen, Michigan (USA) at the age of 17 (I think), and after briefly attending the Academy of Music in Macedonia, I transferred to Michigan State University (B.Mus.), where I started composing. I continued my postgraduate studies (in composition) in London at the Royal College of Music (M.Mus., D.Mus.). I was awarded scholarships at both institutions; my studies and research have also been supported, amongst others, by the Open Society Institute, the Macedonian Ministries of Science and Culture and the British Government (with a *Chevening* scholarship); amongst other awards are the *United Music Publishers Prize* for composition at the RCM and the *Panče Pešev Award* for best new work at the contemporary-music festival Days of Macedonian Music.

My first portrait CD, with chamber music performed by the Kreutzer Quartet and Lontano (conductor Odaline de la Martinez), was released by LORELT in 2011. My music has also been released by Clarinet Classics (*Magnets, Lava, Crystals*, with Roger Heaton and the Kreutzer Quartet) and SOCOM/Macedonian Radio-Television (performers Peter Sheppard Skærved and Aaron Shorr, Ana Gaceva, Quatuor Diotima, Trio Ardenza, and chamber orchestra Arcata Stuttgart). Some of my electronic works have been published by Avalon Production (Macedonia) and the Alliance of MSU Composers. Most recently, a new portrait CD was released in 2015 by Innova Recordings, based in the USA.

Recent commissions have come from the Macedonian Composers' Association, clarinettists Roger Heaton and Linda Merrick, violinist Peter Sheppard Skærved, and the New London Chamber Choir. Other performers include leading contemporary-music groups Pierrot Lunaire and Reconsil ensembles (Austria), Moscow Contemporary Music Ensemble (Russia), mmm... (Japan), ConTempora (Macedonia) and the European Contemporary Composers' Orchestra.

Since 2006 I have been a member of the Kreutzer Quartet, with whom I have performed and recorded extensively (for labels including Naxos, NMC, Tzadik, Métier and Toccata Classics). A particular interest is the application of new music to pedagogy, which was the subject of my doctoral research. I have led a number of shared projects among the arts, both in the UK and internationally, promoting contemporary artistic creativity to a wider audience.

## *Musical influences*

*What influences have had an effect upon the ways in which you make music and the actual music you produce?*

There have been many influences, and of very different nature. There are works and composers: from Bach, Beethoven, Brahms, through Bartók and Stravinsky, to Ligeti, Rădulescu, Scelsi etc.; Jazz musicians, such as Coltrane and, more recently, Steve Coleman; also, aspects of some folk music traditions. The musicians I regularly collaborate with have had a strong and formative influence: e.g. my colleagues from the Kreutzer Quartet and many of the composers we have worked with, such as Gloria Coates. More broadly, I have been strongly influenced by literature (e.g., Borges and Calvino), philosophy (especially Spinoza), mythology (e.g. the work of Joseph Campbell), film, science etc.; and without being facetious, even daily activities (such as those with my family!). I would say that the overall socio-cultural context in which we live permeates what we do, and in this respect, apart from specific influences, my musical activities are in many ways a product of the present.

## *Technology*

*Considering technology in its very broadest senses, please outline how technology constrains and enables your music.*

In a very broad sense, technology is central to my professional communication (from e-mail and Facebook, to my website and exposure of my music online, e.g., released CDs which are available for order and download, live performances available on Youtube, Soundcloud etc.). The latter (online exposure through recordings) is, I would say, especially important for me. While live performance is often fundamental to my music (especially in works which specifically focus on acoustical aspects), I think that performances of good quality (both in terms of the recording quality and the actual interpretation) can go a long way in communicating my works and ideas to a wider audience. Of course, one can never control the conditions under which the work is then heard, and this can be a serious limitation (e.g., inadequate computer speakers, background noise and other distractions can hamper the way the music is received).

In terms of my performing activities (e.g., as part of the Kreutzer Quartet), the situation in terms of promotion and exposure is similar – social networks in particular seem to have gathered a huge momentum in the last few years.

As a composer, some of my very first steps were in fact completely tied to technology (being electroacoustic works); I have not composed with a computer for a long time now, but I have used music notation software (Finale and Sibelius) from the very beginning; however, I always write the music, initially, by hand, and only transfer it to Sibelius later. In this respect, using technology in the initial stages of producing a work would be a constraint for me. For example, there are a number of extended techniques I tend to use which are relatively simple to write by hand, but much more complicated and time-consuming in Sibelius; this can impede the necessary momentum of the creative process.

Another, for me essential aspect of this process is the initial preparation/research, during which I

usually look into instrument construction (mainly when writing for non-string instruments), the available extended techniques (especially ones that are idiomatic to the instrument), and many musical examples. This whole stage has profoundly changed for me in the last ten years or so because of the internet, i.e., the wealth of information easily accessible online. In fact, I would say that the biggest part of the mental 'library' I build in preparation for writing a piece comes from online sources, rather than books.

## *Aesthetics*

*Please say what you consider to be the important aesthetic aspects of your music.*

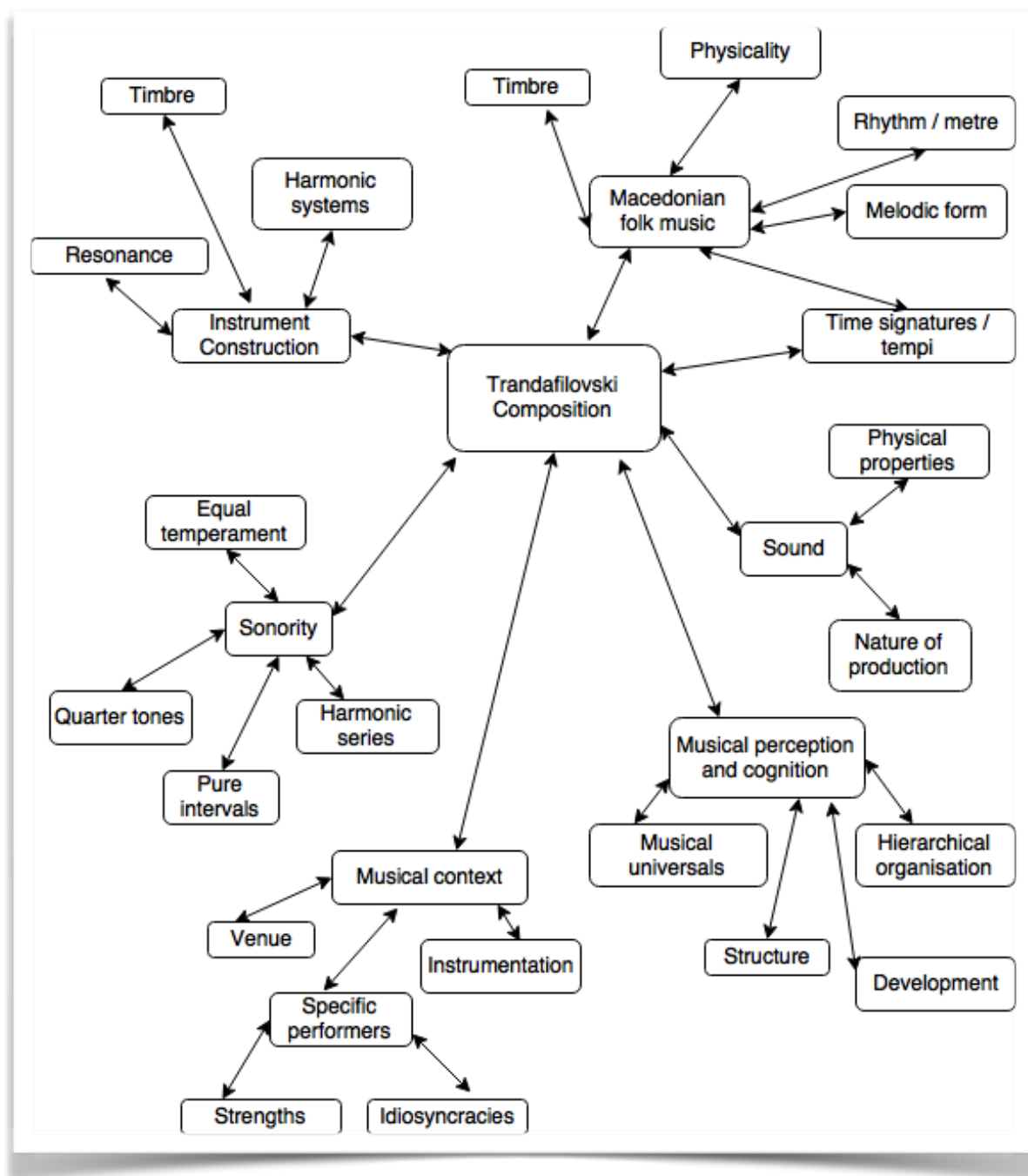
*How do you decide what they are to be and how do you achieve them?*

This is a very difficult question, as such aspects seem to be constantly evolving. In my earlier work, there were influences from the Macedonian folk music tradition – never explicit, but certainly permeating the material in terms of physicality, timbre, rhythmic/metric and maybe even melodic features. More recently, time signatures and tempi have been more consistent, which has allowed me to explore more deeply aspects such as timbre and resonance, and harmonic systems based on instrument construction and sonority (often combining equal temperament, quarter tones, pure intervals, and harmonic series). I am simply fascinated with the physical properties of sound and with the nature of its production, and this has been the impetus behind a number of my recent compositions.

More generally, I have always been drawn to various dimensions of music perception and cognition, and these have been fundamental in both older and more recent works (e.g., the application of so called 'musical universals'), in terms of hierarchical organisation of the material, development and structure. The manner of application of these principles varies from piece to piece, often depending on the context the music is written for, including the venue and the actual instrumentation.

In addition, in the last ten years or so, I have mostly written for specific performers, with whom I often have long-term creative relationships as a performer and composer. Working to the strengths and idiosyncrasies of these maverick artist/personalities always proves to be inspirational for me.

I have attached the liner notes from my latest CD, which perhaps address some of the above mentioned aspects in more detail.



**Fig. 28 Rhizoanalysis of Trandafilovski's compositional influences**

Trandafilovski's principal engagement with the public is through his personal website (<http://www.trandafilovski.com>) (T2). On his home page he says:

Welcome to my website. I hope that it can offer an illustration of my work as a musician, as well as highlight individuals and organisations with who I collaborate regularly - I consider these collaborations essential to the nature of my work.

The pages focus on different areas (composing, performing, pedagogy etc.) - but I think of these as interrelated and complementary. Hence, there is often an obvious overlap.

Ibid.

All of Trandafilovski's compositions are listed on his website here (<http://www.trandafilovski.com/compositions/>) (ibid.). He lists details of his association with the Kreutzer Quartet here (<http://www.trandafilovski.com/kreutzer-quartet/>) (ibid.). Amongst Trandafilovski's research interests (outlined here (<http://www.trandafilovski.com/research/>) (ibid.)) he describes work relating to musical perception and cognition. He says:

For example, both experimental and cross-cultural evidence point to the importance of not only socio-cultural influences but also universally shared elements in perceiving and generating musical material. I found the exploration of these 'musical universals' especially engaging, possibly as I could see some parallels with the way I approached composing, such as hierarchical organisation of the material and the control of tension and release; these are of course very general, underlying principles, and I explore them differently in every piece – but whether on a conscious level or not, I think have always been drawn to them during the compositional process.

Ibid.

In the liner notes to his CD *Five* (Innova #914 2015) Trandafilovski says:

Some concepts around which the music gravitates:

- Networks: harmonic (linking harmonic series, just intervals, quarter tones and equal temperament); textural; structural; within, and between pieces.
- Physical aspects: the acoustical properties of sound; resonance; idiomatic sonorities based on instrument construction and sound production.
- Polarity: from small scale organization of the material, to general concepts, and ultimately, to the complementarity between such concepts and instinct.

(T3)

He says this about tracks 3 - 7, the piece for two cellos, *(S)PACING* (2008-09):

*(S)PACING* (2008-09) was written for Neil and Eve Heyde. Shortly after I joined the Kreutzer Quartet, Neil suggested I write a piece for two cellos that would introduce a student cellist to contemporary technical challenges. We jointly looked at possible sounds and techniques: from the glissando universe of Gloria Coates, through the extended sound-world of Lachenmann, to white noise, stomping, etc. I think the original idea might have got a bit out of hand at some point in the compositional process – I wouldn't call the end result 'pedagogical'. Nevertheless, the piece requires a 'physical' performance in which extended instrumental techniques are fully integrated with pitched material – in a way, stretching conventional playing movements into a new physical space, and resulting with a different 'choreography'. At the same time, the five movements of *(S)PACING* balance the musical pace/organisation in time.



These remarks concern tracks 12 - 15, *CHETIRI (FOUR)* (2012):

In *CHETIRI (FOUR)* (2012), a single impulse gives rise to four 'elemental' movements, based on haiku poems by the Macedonian writer Vladimir Martinovski. It was commissioned by the New London Chamber Choir, and the specific/unusual combination of a relatively large vocal group and a string quartet (by its nature, a more intimate, chamber music medium) was influential in generating various aspects of the piece. This complements the four interrelated poems: breaths are paralleled in waves; a 'flying' thought is brought back to earth by a raindrop; a bee falling through a black hole/into earth; light and sound on either side of midnight ... Some aspects of the music specifically relate to the text: for example, the growing, expanding breaths/waves in the first movement, or the extreme textural contrasts in the third; in another way, the music and text are related through both breaking down and exploring the words/sounds – single phonemes, transitions, syllables are used to create texture, and similarly, a net of harmonic relationships is built connecting harmonic series, resonances based on the tuning (pure fifths) of the string instruments, and equal temperament.

Trandafilovski's recordings are available on Spotify (<https://open.spotify.com/artist/1ZsEDzjMLtYO352B3ZSFpV>). (T4)

## **Alex McLean**

### *Musical background*

*Explain how you came to be a musician. Give details of your musical 'history'. Outline your playing, performing, composing, recording activities.*

My dad is musical, he used to perform at the local folk club and I went with him quite often. He encouraged me to pick up the guitar but I didn't get anywhere with it really. I just got 'stuck' playing riffs. I listened to a lot of music though, got into the local club scene in Plymouth as a student, and started playing around with trackers and sequencers as soon as I could afford my own computer, probably aged around 20.

I got much more obsessed with computer programming from a young age, did a computing course at university and got into the more social and creative side, making online bulletin boards and writing code for the hell of it. When I left University the first time my friend Adrian then got me into generative music, and we started collaborating and eventually performing together as "Slub". All our music was generated using our own handmade software. Ade became quite famous in the world of software art, which gave us a leg up into performing at festivals across Europe, despite largely only making live improvised music without recordings. Ade started making systems for live coding, inspired by Max/MSP but also as a kind of satire of it. Then having met people like Nick Collins from SuperCollider we connected with the slightly larger world of live coding (or live programming, just-in-time programming, on-the-fly programming as it was called then) in the SuperCollider community. We went to the first really live coding event "Changing Grammars" organised by Julian Rohrerhuber and Renate Wieser in



Hamburg. This is where TOPLAP (the international live coding organisation) was formed, and I immediately started making my first real live coding environment - feedback.pl. At some point Dave Griffiths joined Slub, and we continued live coding for many years until Nick Collins and I came up with the name "Algorave" for an algorithmic dance music event. Somehow coming up with this stupid name was the key to creating an international community, having a 'brand' has led to dozens of cities around the world hosting Algoraves. Having a community is a huge part of music making so the emergence of TOPLAP and Algorave are big milestones in my musical life. Another is the development of TidalCycles, a live coding language based on pattern transformation, which has allowed me to work more or less with the same level of expressivity as instrumental performers, for example allowing me to collaborate with Matthew Yee-King as Canute. In the last years I've been working with a Sheffield record label Computer Club, releasing Peak Cut EP and forthcoming album *Spicule*, really excited about that.

### *Musical influences*

*What influences have had an effect upon the ways in which you make music and the actual music you produce?*

Listening to a wide range of music. Everything has interesting patterns in that can be codified. Most directly, early influences were 'idm' artists, particularly Autechre, and artists around the mego label, such as Farmers Manual. But also minimal techno from Speedy J and Plastikman.

In terms of the ways I make music, that mostly comes from collaboration, from working with fellow live coders, and also instrumental improvisers. Probably more from the latter, because that puts the most pressure on my technologies and techniques. For example the flexible temporal structures in TidalCycles come from working with live artists and improvisers who are free from the 'grid,' and its focus on tersity and quick change comes from working with free jazz improvisers, particularly percussionists.

That said I've gained a lot from existing technologies, probably Bernard Bel's BP2 more than anything. I have never used it but read his papers and the manual, and the polyrhythmic sequence parser in TidalCycles owes an awful lot to it. A lot of my knowledge of music theory comes from BP2, which was originally developed to transcribe tabla (BP = Bol Processor). So although I've not really got involved with Indian Classical Music, it has been a massive influence on me through the BP2 language and the reading I've done around it.

### *Technology*

*Considering technology in its very broadest senses, please outline how technology constrains and enables your music.*

Well the technology I use (TidalCycles) is a language, it has constraints but as the originator of the language I've kind of chosen those constraints. The terse nature of TidalCycles (and the Haskell language it's embedded in) contributes to its level of expressivity that I wrote about above. Also its heavy focus on cyclic structure affords fairly repetitive music -- music that I would have made anyway

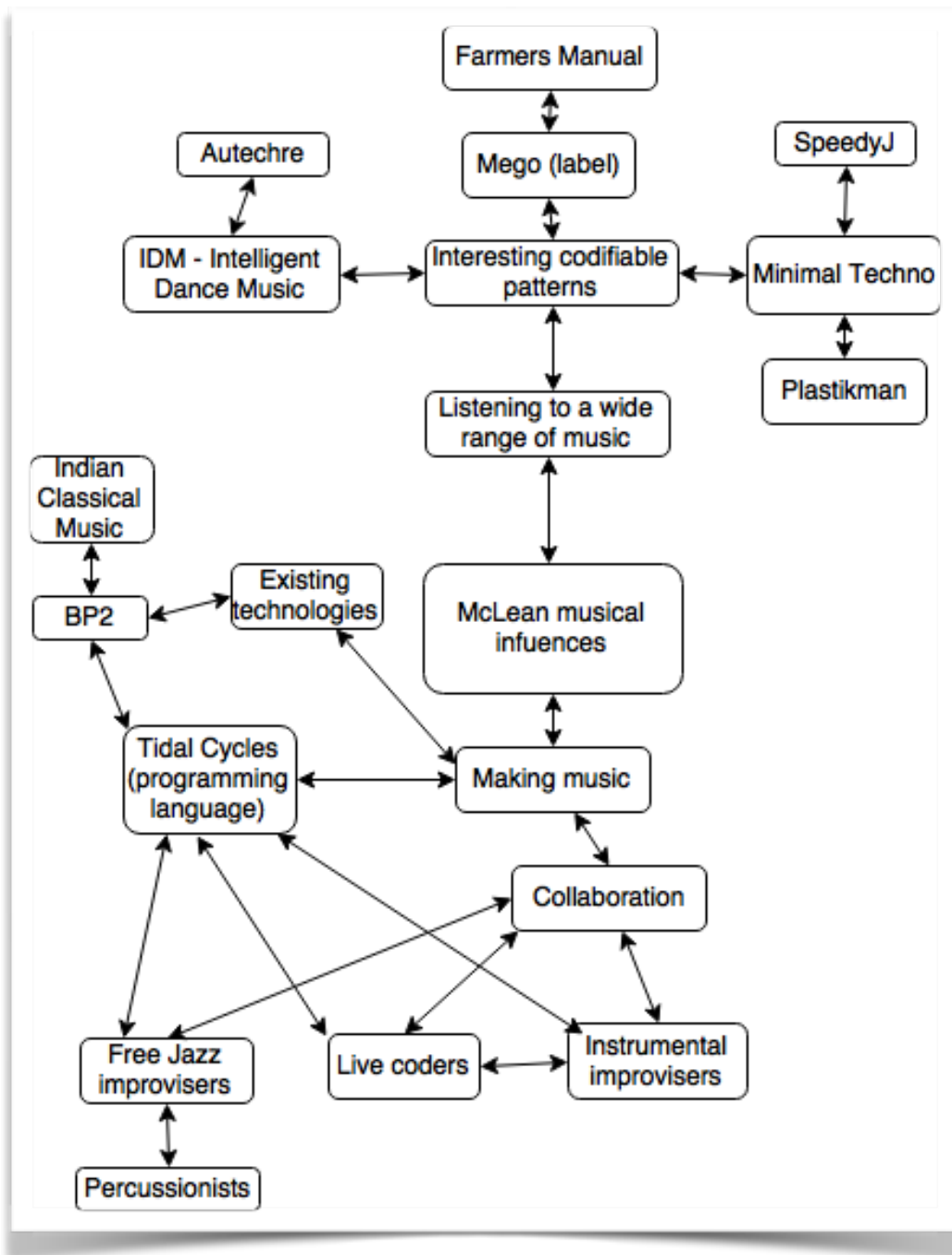
but anyone else coming to the language -- because it's an active free/open source project -- might feel constrained by this.

## *Aesthetics*

*Please say what you consider to be the important aesthetic aspects of your music.*

*How do you decide what they are to be and how do you achieve them?*

I generally don't come at music making with a particular plan. I just pick a sound or two, play them in a loop, and see what it suggests to me in terms of the development of structure and timbre. Of course what sounds and structures I make is of key importance, but just as important for me is *when* I make a change. Not too soon, not too early, and with its own rhythm that feeds into the anticipation of the listener. I'm also taking techno as a starting point, and seeing how far I can stretch it while bringing people with me. But this also is part of the essence of techno I think, keeping that slightly alien, cerebral feel while also fulfilling the needs of the moving body.



**Fig. 29 Rhizoanalysis of McLean's musical influences**

McLean has by far the largest web presence of the four vignette subjects. His own work, particularly in the field of live coding, has captured the *Zeitgeist*, and the proliferation of events around the world related to the Algorave movement has seen him in demand for presentations and performances, including at the Glastonbury Festival (June 2019).

This link (<https://www.youtube.com/watch?v=nAGjTYa95HM>) is to a YouTube recording of a TEDx talk, *Algorave: algorithmic dance culture* given by McLean at the University of Hull in 2017 (M4). The description attached to the video says:

Alex is based in Sheffield UK, and works as part of the research institute in the Deutsches Museum in Munich, using live-coding techniques to explore the ancient thought processes of textile weavers, for the European project PENELOPE. He releases his solo music as Yaxu on the Computer Club label, including the EP Peak Cut and the album Spicule. He curates the annual Festival of Algorithmic and Mechanical Movement ([www.algomech.com](http://www.algomech.com)), bringing together code and machines in the performing arts.

Ibid.

McLean's principal public-facing web presences are his website *Yaxu* (<https://yaxu.org> (M5)) and his blog *Alex McLean* (<https://slab.org> (M6)). He is the organiser of a Sheffield-based festival called *Algomech* (<http://algomech.com/2017/> (M7)) "Sheffield's festival of algorithmic + mechanical movement" (M7). During 2015, McLean was the sound artist in residence at the Open Data Institute (see <https://theodi.org/event/data-as-culture-exhibition-thinking-out-loud/> (M8)). Gavin Starks, the CEO of the ODI said this:

As data becomes pervasive in all our lives, we need new ways to engage and interact with it as a material. Alex's specific style reveals the inner workings of the machine, helping to dissolve barriers around digital literacy and creating a causal performance experience for the data-driven age.

Ibid.

Writing in a blog for *Sonicwriting* (<http://www.sonicwriting.org/blog/livecoding> (M9))

Magnusson says this:

Several articles address audience perception in live coding, defining it as a practice where most commonly artists choose to 'show their screens'. In *Understanding Live Coding Events*, Burland and McLean provide a study that aims to 'explore the motivations, experiences, and responses of live coding audiences and to examine their perceptions of the role and impact of the projected source code during live coding events'. This is an area that has not been investigated previously in any depth within the live coding literature, but live coders' gesture of projecting code sets up a relationship between performer and audience that is rather unique in the performing arts.

Ibid.

McLean writes about the use of the Perl programming language (from <https://www.perl.com/pub/2004/08/31/livecode.html> (M10)):

The aims of all this are many and varied. One is to make people dance to Perl code, another is to be able to jam freely with others, not only laptop musicians but also drummers, singers and other 'real' musicians. Indeed, although programming does allow a certain unique perspective on things, the overall aim is to be able to reach some kind of level playing field with other musicians. I believe to reach this point, we have to learn how to use the whole computer as a musical instrument, rather than limiting ourselves to consumer software packages.

Ibid.

McLean and Sicchio (2017 (M11)) writing about the interaction between the source code for live coded music and choreographic dance scores running and performing in parallel say this:

In SC<>BC, the technology intervenes, becoming a choreographer organising interaction between the performers, who are otherwise unable to sense and respond to each other. The technology links the feedback loop, bringing bodily movement into the code of the sound on one side, and the sound into the movement of the code on the other. As the piece develops the feedback loop begins to bring elements of uncertainty into the system and allows for the connection to feel as improvised as the creation of the sound and the movement. (M9)

There is an analogous relationship in the live coding of the sound; the more movement the dancer performs, the more the code for the sound is disrupted by the function within Texture. Within the performance, changes to the musical code-score are made not only on the accord of the live coder but also in response to the dancer's movement. The human programmer is then forced to abandon any sense of planning and control, and just work to influence the code-score that is in a state of flux. (ibid.)

SC<>BC engages two sides; two practices (music, dance), two notations (musical, choreographic), two bodies (live coder, dancer) in mutual influence; the dancer's body interfering with the musician's sonic notation, and the live coder's sound interfering with the dancer's choreographic notation. This creates a feedback loop which passes through dancer, computer vision, live code, sound, machine listening, choreography, and back to the dancer, but the coder sits outside the loop, their body apparently disengaged apart from a fixed gaze into their laptop, and their typing fingers. (M11)

### ***Julian Broadhurst***

I sent Broadhurst the same four broad questions as the other three participants. He chose to respond in a different manner from the others. Over a period of a couple of months in the autumn of 2016 he sent me four lengthy documents<sup>78</sup> which he called "dialogues". They take the form of Platonic dialogues, with an imagined version of me as Broadhurst's interlocutor. Clearly, limitations of space preclude their full inclusion in the

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<sup>78</sup> Which total just over 30,000 words (B1, B2, B3, and B4). Appendix C, p. 236 *et seq.*

body of this ~~dissertation~~-assemblage. The full material is produced for reference at Appendix C, annexed to the main body of this ~~dissertation~~-assemblage. I reproduce selections below which are germane to the rhizoanalysis diagram of Broadhurst's musical influences and aesthetics.

Tom Hewitt<sup>79</sup> musicologist conducts the first in a series of interviews with Composer – Percussionist – Artist - Julian Broadhurst.

TH – Where do we start with all this music ? Where did you start with it ?

JB – Oh that is hard. Where did I start with it ?

With a longing – a deep gnawing at the soul. I had music all around me – I loved it. I loved records – the house was full of records as a child. My parents were both musicians and music was a part of school – every day. But when I left primary school, the atmosphere was gone – the ethos was gone – I just sank into the nastiness of it, and I was gone for a few years. From a musical point of view I lost music as an occupation. The love of music became a longing. My good friend James Rose was developing his passion into progress – getting his grades and forming bands – I would listen to him talk with such passion – how he inspired the need in me – and how unreachable it seemed. I owe him everything – from that point of View. He said 'every minute I'm not playing or thinking about music I not a musician.'

I needed to change my life – I was on the wrong track – I had to give the dedication James had to my own life – but I was such a romantic fool at the time. Madly in love – with life, and music, and girls and women, and Countryside, and Ideas and words – And Art ! The last couple of years at school – oppressive and crushing as they were, was the forming of me - as I fought my way out of this – toward music and into Art. [B1]

TH – So how did you get out ?

JB – Not through careful planning that's for sure. I was a good student – I had discovered and loved literature – I wanted to take it to university level but I just hated school and bang one day everything just hit the fan and I was told to leave in no uncertain terms. 'For every man like you we lose we gain tenfold – I was told unhelpfully by the head of Sixth form. I found my way to college and music A level, after the long and visionary summer of 1984, echoing to the sounds of Mahler's 9<sup>th</sup> and Vaughn Williams 5<sup>th</sup> The Berg and the Bartok Vn Concertos, and the punk and gothic scene I fell into in town. [ibid.]

[...]

Young people don't invent their lives it seemed, but they do, if they are beginning their odyssey. I coined the phrase 'Be world Ready for when the World is ready for you.'

TH - How did you do that ?

JB – through rigorous Documentation. Confronted with the real possibility of death at 19 in 1986 – I saw that there would be so little left – just a hand full of uncatalogued Drawings and poems – I had

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<sup>79</sup> I emphasise that the references to me in these excerpted textual quotes from Broadhurst are not my questions, but rather Broadhurst's imaginary interlocutor.

work to do – that's what my life had to be about. I get out and I start Cataloguing – I take the initiative to found things – that would affect the whole of my life for the good of my life. I conceived of a beginning point for my art., the Op 1. The poetry was important then but today it still a sideline. It was though very important during my illness when my eyesight and hearing were badly affected by the cancer and the treatment – and it was an art I could still practice – even if I had to dictate it to my mother at my bedside, a long job reading back because I knew exactly how it should be punctuated and laid out on the page. Like everything it had to be 'Just so.' Books and sets of pictures took on opus numbers 'Sonata for triangle and line' nos. 1 and 2 – two sets of four pictures each. Minor works now but they show an intense association with music as though somehow the art was music. This was my intensity of devotion to craft - like that I had seen in James Rose years before. Like my Hero Berg – I abandoned Op. nos. I never re adopted them in music, That Op. 1 is still Op 1, if anybody asked. I adopted a cataloguing system for the art, the CW Catalogue or Canonical Works, 001 to 860 something. Actually the page numbering from a patter book I created of my work to date – in 97 - just out of university. Every subsequent 'Work' in that qualified sense would follow this with a CW catalogue no. to signify its 'Acknowledgement' as such. I would mirror this in music after the change – as a way of life I was used to. The Rh catalogue – Rh for recording at first – then just Rh. Helps you keep order over the chaos – of ripping ones life up and throwing it in the air - again ! [ibid.]

[...]

That's how I started with music and a little bit of why – it is instructive to talk through this kind of thing – you never know quite what you're gonna see clearly for the first time. I can't discuss my music without my art. I definitely see the one in terms of the other. Some wag called me the Andy Warhol of the contemporary music world – not sure it's entirely flattering – not sure it isn't true in some respects – the way I have posed the same music in different timbres does make me think of his multiple screen prints. I think I have a lot in common with Marc Rothko and Barnett Newman. Looking at their work I used to think I could hear it – I'm not a sound artist – even if I obviously have a lot in common with them. Everything begins and ends with music. Every gesture has to be in constitution music. I have to imagine performance into works even those that could not in principle be performed – much like a film would not normally transfer to the stage – but it is non the less theatrical in that sense of Acting. [ibid.]

[...]

TH [...] percussion – where dose that come in ? To start your music it looks like we need to start there. If you gave a percussion recital it was presumably more than just a sideline.

JB – I'd been drumming for years. It vanishes into childhood – We a had a metal cabinet as part of the kitchen furniture with a gas boiler in – it was warm – sometimes too warm, oftentimes cold and I would sit on it – and percuss on it with my fingers 'Gloriously' ! I acquired a menagerie of drums – African, Indian – and a double ended Tibetan drum, which would later become a showcase instrument for me. I would stay up late into the night playing – imagining an audience. Years pass and I'm often spending time with my mother at small folk events and things with Her folk Group 'The 'Red Lion Band' - I became their timekeeper. Onetime at Bonsal Rhythm Café' – I took a solo spot – improvising three short pieces. I became a regular act in the late nineties and all through my Art Career. It was a sideline – a break from my real work as an Artist. I adopted the stage Name 'Perpetuum Mobile' in perpetual motion. My playing being vastly broadened by the gift of a wonderful small Djembe - the inside of which I polished smooth. Its sound is amazing. By inserting a hand in

the bell, like a French Horn player, I can change the pitch. I used it so many times in recordings and on stage. I gave the first of two recitals at the University of Derby in 2005 and the second, an evening's performance, the following summer. Where I performed for two hours to paying audience The University were happy I could do it – and I promoted it on the radio – the BBC making my very first recording during an interview. [ibid.]

[...]

I'm always playing things – stairwells – cabinets – any resonant object - If I can grab some time on it. With my hands and feet – often I had sticks in a pocket. Walking up the flights of stairs to my flat – the whole well is delicious – sooo many times – every foot and stick fall – the timing and the timbre – it is a work in lieu of becoming an Actual work - for the want of recording – of setting action in stone. [ibid.]

[...]

TH - The desire to compose was in you ?

JB – Absolutely. Listening to Tangerine Dream as a 15 year old – I wanted to do that. They styled their albums as having been 'Composed by' They were 'Composers' but not like the Classical composers I was listening to and loving. It was only when I discovered Stockhausen that those two worlds met – I could be a composer – something apparently only mythically given to certain individuals in the past. I premonitiously imagined a steaming music of crashing metal. [ibid.]

[...]

TH – Thank you Julian and Next time we'll talk about the music itself. [B1]

Now the second dialogue.

JB [...] I had borrowed a genuine Native American Frame Drum just a few day's before - and recorded a series of pieces just with this. 'Inventions for Shamanic Drum' – seven pieces recorded in the order they appear on the album. The album is styled as by 'Perpetuum Mobile' – my stage name as a percussionist. [B2]

[...]

TH – How were these pieces recorded – in a stream and then edited ?

JB – Well No. that's the spooky thing about it – they were recorded one after another in single takes – with short breaks between. I would signal that I was ready to go and I was live. No false starts – I played the album into the mike. In the headphones I could hear a live ambiance – so I played to it – using it's proportions – decay etc to proportion my performance – my dynamics and timing. The last piece – just as an experiment - he showed me some 'in-can' effects I might play to – I chose bird song – a theme I'd Come back to in later works in my own studio. [ibid.]

[...]

TH – And you cut your first album in one afternoon ?

JB – well, if you discount – the remaster and the review processes that followed then yes – certainly the 'text' – the Aural score – the fretwork, – was laid down fully formed in one afternoon. But understand - I'd been playing for years before then - 25 – 30 years I don't know – I knew exactly what I was doing. Only difference was I was being recorded. [ibid.]



[...]

TH – This word ‘Invention’ – I think it tells me everything – but just go into it.

JB – It has a long history with me. I used to describe my process of drawing construction as ‘Invention’ – I was very aware that previous moves within the rules of engagement I’d set – the Elements in Elementalism – more or less gave rise to the next – a form of structured rule playing I had inherited from musical ‘Invention’ – particularly in the work of Bach. And that is the context from which I take the usage of this word. The construction of every phrase is one of process. I live every process – and every minute step of Sense – every sentence in the punctuative scheme leads to the next. This album is very close work – it really is a live Composition – ‘Comprovisation’ someone called such a process – Bernhard Gunter I think it was. That’s ‘Compro-Visation’ not ‘Compro-Miseation’ – there are no compromises here – it is very exacting and I am in complete control. My friend with the studio was a technician so much as a producer – I was certainly the producer when I subsequently remastered it - as I got ever more exacting. [ibid.]

[...]

JB [...] The Second album, for PM didn’t happen. I was by this short time already dissatisfied with the Studio – at Marehay. We’re talking a period of a few weeks here – a month maybe – I’ve got a small digital recorder laying down Drum and environmental pieces in digital compression maybe flac I don’t know – but I couldn’t write them to CD. I wanted a third album of the pieces I’d recorded. The thing was he couldn’t write it either. So – I need studio software of my own – and I splash out. I get computer studio kit – and I can write my Pieces to disc – I put the 5 new Marehay pieces together – and for the sake of their advancements in technique – I call them by the magic word - Sonata’. [ibid.]

[...]

TH – So you lay two definitions down so early – ‘Invention’ and ‘Sonata.’

JB – Yes. Inventions are a set of technically heightened pieces – which are not movements but rather parts in a suite – probably but not necessarily thematically related and nominally independent Individual pieces could be called inventions but are not – the point is of their being in a suite for a solo instrument – a la Bach – my model and Master. The individual ‘parts also carry Rh Catalogue numbers – That’s something else I laid down in these first weeks. [ibid.]

[...]

JB - I’m broadening the remit – it’s no longer just Drum percussion. I’m experimenting like a guy in a white Coat. I’ve described this time as an ‘explosion of creativity’ - in several directions at once. [ibid.]

[...]

JB – These emerging areas of compositional interest have recording facilities set up in different parts of the House/Studio. I’m starting to call these ‘Sections’ or ‘**Tranches**’ of my working interest – to build and define ‘a music’ of / for - in that area. [ibid.]

[...]

JB I had a lifetimes love of the sonority of metal – born of 1980s Art Pop music as much as anything else – and 70’s 80’s ‘Industrial music’ – Faust, Einstenzde Neubauten et al. of course Dear Stockhausen and Xenakis. So many works of mine include or are based on metal sonority. From tuned – Bells gongs, Pianos Xylophones et al. to untuned voices or Ideophones – whose indefinite pitches are an exciting mechanic for my music making. I had defined into existence the second

Tranche. I realised that this was a totally separate area of musical interest. So there could not be now a single chronological set of works but rather two Concurrent chronologies. It's this idea of presenting Chronological sets of pieces from these emerging areas of research interest that gives a need for these Hard distinctions as **Tranches**. This new level of distinction would necessitate a new way of looking at things. Where each Tranche - with its own set of recordings – must have its own set of albums – within my albums – ohhh complexity. [ibid.]

[...]

JB [...] I said that Electronic music had travelled the farthest distance from its acoustic source. So the distance a sound is seen to travel **from its acoustic origin** became the test for the positions I set for the Tranches in my position order of the whole damned thing. If I've got five Concurrent Chronologies – so how do you write that down in just two dimensions? [ibid.]

[...]

JB – Electronic music of course, as I explained last time, is seminal in my love of music and desire to make music in the first place. The Cosmic music, in German 'Kosmiche' – of some Tangerine Dream and a minute proportion of Klaus Schulze. For TD the classic 67 – 77 era – the live concerts – tortuously collected on bootlegs and some remarkable Albums then and in the very early 80's. For KS the Albums - Cyborg – X [ten], Dune and Trancefer. The rest of all their gazillions of albums I really can't abide – their fans would be horrified but to me it is dross. Contrasting starkly with what I love and which I worship. As a very young man of 15 – 18 and many times since I've drenched myself in their vast deep listening – where the slightest inflection was an event of import. This deep meditative quality underlay my own need to compose such pieces – which litter my own electronic output. And, which take the process of 'deep listening' to its logical extreme. [ibid.]

[...]

JB – Sometimes ideas need to be tested to destruction to prove a point. [ibid.]

JB -There is something in the quality of this 'Cosmic' aesthetic – that chimed with me and with the sensuality and sensibility of some strata in classical music. My own is not at all about the decadent 'OH-Wow-Man-ism' of space rock – no not at all - it was the Cold elemental stillness, the depth and dynamic - a colour of form - that I derived from it - for my own work. In a deep, total immersive musical experience – where the **Cosmic Aesthetic becomes one of music itself**. An 'Elemental music', an Elementalism of music construction. A la the Elementalism of Form and Space in my Art. [ibid.]

[...]

JB I was not building pieces to rush out and publish – no I was researching, creating compositional studies – and building up hour upon hour of pieces. Only then did I have the **hinterland of experience** to put everything together in a **formal music** - a '**Notional Classical music**.' This is my Electro-acoustic music. [ibid.]

[...]

TH – Let's pause there – I need to absorb this – These five Tranches – emerge in the order they do because they define each other – by content - by exclusion – and others define themselves by combination – exhaustively as it were. And each has its own chronology – [ibid.]

[...]

JB - And So to **Phase music Phm**. I had taken the Phase music quite along way already - resulting in 5 albums of Phase music. The first 3 Phm albums are a 3 volumed collection of early studies – Phasing studies from a dedicated space in the studio called the **Phase Lab** followed by two sizeable Works - each over an hour long. The highly experimental '**Click Track Toe**' and the complex '**Jove**.' Phm by this time was getting quite sophisticated. Jove – Rh 145 I describe as a Phase Montage for Drums.

TH – A very Visual description.

JB – The Art World would have been only something short of a year behind me. I'm not sure exactly. I didn't keep a studio log – there wasn't time. [ibid.]

[...]

JB - The 19<sup>th</sup> album - **Em 1 - 'Canticle for Large Bell'** is a collection of Early studies but contains notably – the 'Canticle for large Bell'. I had the opportunity to record myself actually striking a church bell. The word 'Canticle' is the name of a piece for voices in church music – in this case the Voice -singular - is that of metal. That's a liberty I would often take. [ibid.]

### The third dialogue

TH – So 'New Horizon' is a notion not an event – [B3]

[...]

JB – well - my 40<sup>th</sup> Birthday was coming up – Isabel was kind of a very expensive present to myself. I felt I really wanted to make a statement – a personal thing you know – I had a delicious idea. I would fill the last days of my 30's with music. Like how much music could I make before I was 40 on March 15<sup>th</sup> 2007. I was 3 days away ! There was paper all over the floor - I was planning this all out. Three pieces – three movements each. I had drums galore – metal objects and resonant curios – I'm a magpie for such things – all on the hard studio floor or suspended from frames. Each night I would sit in the middle of my performance space – and record live for an hour and so – with some stage electronics – maybe studio electronics to come. We have chairs at the end of the room - it's a performance space. I call this 'Live' recording – it is a performance - With Huge drums and amplified metal. Each night a different methodology - each night a different characterisation – a different admix of acoustic and electronics – with more layers to come – ah so many decisions! [ibid.]

[...]

It's the day before my 40<sup>th</sup> Birthday – March 14<sup>th</sup> 07. I drop some drum sticks on the studio floor – I love that clatter. Suddenly - an Idea occurs ! Could I make a piece for Drum Sticks – not for the studio floor or any object I might percuss with them - but rather for the sound of the wood of the sticks. Where I play the sticks for their sound in and of itself. I chose to use the studio floor because that's where they fell – to interest me in the first place. But also because it is dull – thus making the sticks themselves – not their target - the subject of resonance – the musical interest. Something which normally is simply the transmitter of the intention - is now also its own subject – Like Escher's hands drawing themselves. [ibid.]

[...]

JB – I rarely used synthetic sound – I'm loth to – I'm a sound recordist I don't need to – it's inauthentic. With me if you think you can hear a cello – you can – but having just said that when I

transform a cello's voice – what is it the voice of ? I have spectrally transformed one instrument to another – but what have I done to authenticity ? [Throws hands in air.]

TH - This is research as much as composition.

JB – The object of my search to find out what music is by dint of what it is not – And – to make a body of music and still the fire inside.[ibid.]

[...]

JB - Such is the influence of Nono on me at this time that I take a fragment of Nono and bind it to a point where Particulates shatter out – which form part of a DNA cell line from which emerged a compositional study 'Particulate 1 Rh 162 and a rather lovely sister piece 'Particulate 2 Rh 163. [ibid.]

[...]

JB - This is Stockhausen meets Earliest Era Berlin School Tangerine Dream - Except that I only ever use Acoustic Sources - Instrumental and environmental. I made three of these pieces - each from a different methodology. I deliberately don't keep a studio Diary. I will go along similar veins if promising in results - but evolution is the watchword - straight repetition is waste of time. Experimental music is a branch of science! [ibid.]

[...]

JB - Clap Tap - Rh 174. Doing something I once did a lot of, stealing a moment of percussion, in an unlikely place - an empty room in a hospital - a few moments before someone came in, how long had I got to frame a rhythm ? Playing my hands against the acoustics of the room.

For the Birds - Rh 175. An outdoor piece - another moment stolen from a natural acoustic - this time the goose calls of Carsington Water's Geese and a lonely bench on the shore. The title Clap Tap begs you to say clap trap - whereas 'For the Birds' is that expression of a thrown away moment - where I 'sang' for [and with] the birds. [ibid.]

[...]

JB - Tonnel - Rh 193. Spelt Deliberately with an 'O' - It was recorded in the canal tunnel a mile or so down from Cromford Wharf, scene of the 'Canal Side Gathering [and Rh 180 a week or so before], in early 2007. We carried Drums and Microphones down the wickedly narrow towpath a mile or so, and back. [ibid.]

## The fourth dialogue.

JB – 'Em 16 - Moment of a Butterfly'. Two closely related pieces - Moment of a Butterfly - Rh 201 and 'Moment and a Butterfly – Rh 202.' Using the word 'moment' here in two quite different senses. I give a description here that is basically the album text – since it was very to the point.

In the first piece – 'Moment of a butterfly – Rh 201' the 'moment' in question is in the sense of a physical quantity, as there are said to be moments of inertia. As a unit measurement of something tangible, quite what in this analogy a Moment of a Butterfly could be I can't say, but it would be a linguistic delight to try and do so. Butterflies have a long history in my Art, in Pictures and poetry, I used to describe the creative process as being not simply making a silk purse out of a sow's ear, as the old maxim forbids, but to make a butterfly out of one - as I propose, then presumably, to 'Take' the Moment' of it. [...] 'Moment and a Butterfly - Rh 202' - conspires on the word 'moment' again, but this time with a temporal implication, a moment in or from time, with the butterfly, captured as is it were,

frozen in a moment like perhaps the frame of a film - and the duration of that frame's exposure is that moment. [B4]

[...]

JB - just to finish - unusually I added a phrase of my own 'I stand by this as a piece of conceptual painting' - Julian Broadhurst - June 2015. [ibid.]

[...]

JB - Anyway - I've always had this thing about witches – went out with one once and I had many friends who were witches so I attended quite a number of ceremonies. They don't have green faces and wear pointy hats – most of them anyway – but they do have woodland ceremonies – and feasts and firelight – candles and incantations. So that's how I got to record a ceremony and that's how I came to resolve the issue of 'Ritual' - to work an incantation - to turn that recording into flickering – Shadow dancing music. [ibid.]

[...]

JB - I was in the kitchen at Isabel – and as I have said already – Isabel is the building - so any space or object within it might be called on if needed - to the making music. So - I was in the kitchen - the tap at the time had a persistent drip. A bottle I think had been left just under the tap and was filling slowly from - a for the most part regular twin drip – but which had an interesting irregularity built in. As I listened fascinated by its musicality – I was also aware of an incremental change in pitch as the vessel slowly filled. I imagined how interesting this could be as percussion – so I set it up again – deliberately this time to record it - took the sound to the desk and started playing with it, I had been 'Given' this - as it were - to become a work - and in a couple of hours I had 'Solitaire.' I don't remember why I called it that – except that a friend from the witches Ritual - Maria Finch - a fine drummer with whom - many years later - I would recorded 'Drum Mantra' – had always called herself 'Solitaire'. That could be the reason. Honey delicious little piece – I like it very much. [ibid.]

[...]

TH - You said a long while back that in your definition a sonata can have movements but an Invention does not - because an Invention is a piece in a suite of works that can stand alone. Why is that ?

JB – Because in a multiple movement work – I would expect individual movements to be discrete statements of import to the whole such that the absence of a movement removes something necessary to the completeness of the whole. Or put it another way a movement divorced from its whole is incomplete – perhaps it doesn't work to say that it is incomplete like that – you would get used to it I suppose if you had never heard the whole. But – certainly a multimovement work gives us discrete opportunities to view thematic material from the other side – from another side – and advances the possibility for levels of depth in a work. [ibid.]

[...]

JB - I have a couple of friends who perform with a Change ringing group – we'll call them C & M. I was invited to their local tower to make some field recordings at a rehearsal. These Bell Harmonics then formed the basis of two new works – a 'Yin and a Yang' 'Change Circle – Rh 221 and 'Pattern Dance - Rh 222.' These are Very large Electronic confections – like abstracted Stained Glass in

Sound – acres of blue and yellow fragmenting down to tiny pieces with fractal boundaries.  
Superficially similar works but with very different moods and colours. [ibid.]

[...]

TH So borrowing time on instruments and hybridising pieces for them – that is not so far away from your idea of creating ‘inventions for disparate instruments.’ This time not maximising the limitations of the instrument but Maximising a deliberate limitation of the instrument’s natural richness. Serial like but with the framework of an improvisation? [ibid.]

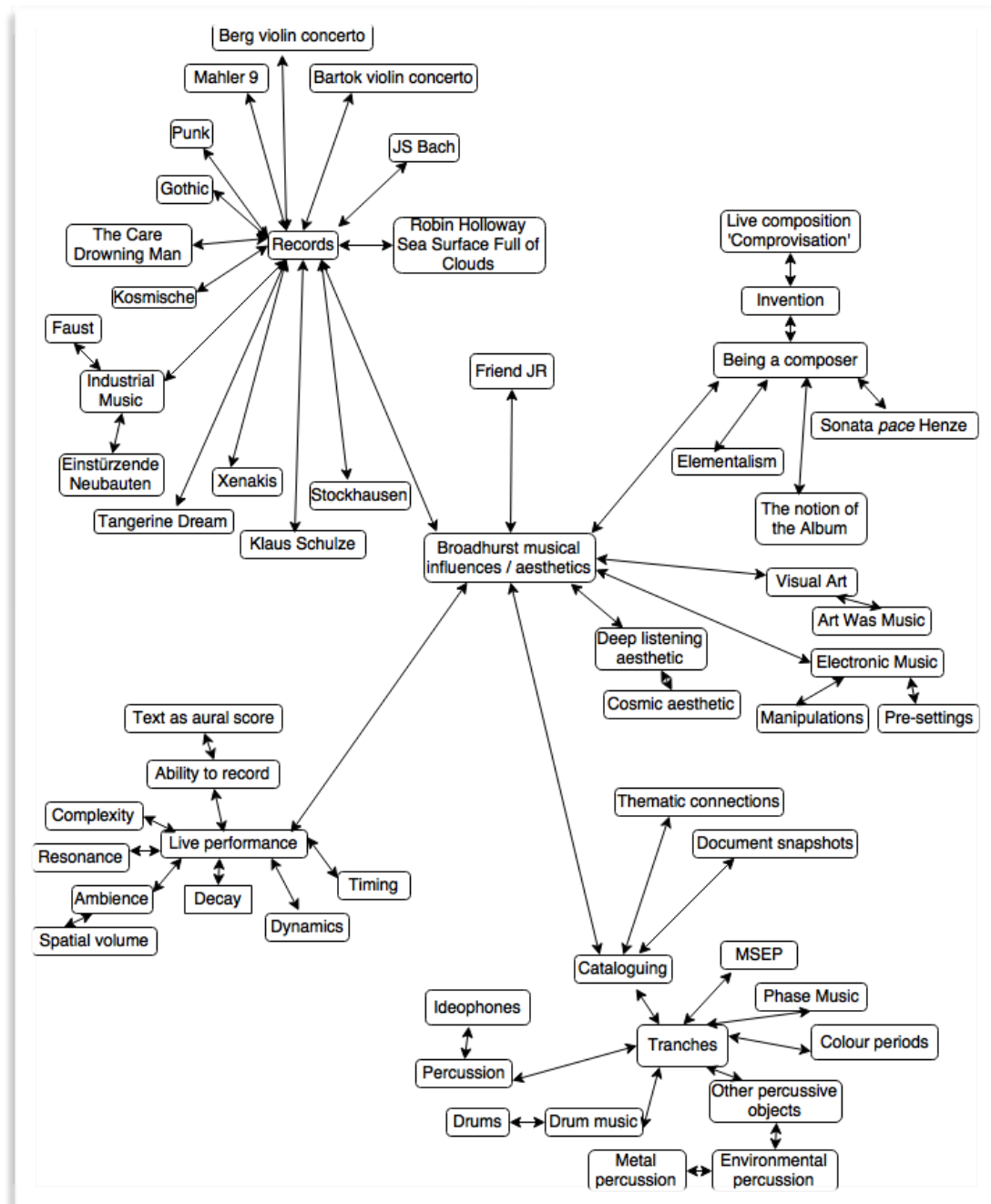


Fig. 30 Rhizoanalysis of Broadhurst’s musical influences and aesthetics

Before his current work in music, Broadhurst was a prodigious visual artist. As can be seen from the “dialogues” he produced for this research concerning his musical oeuvre, there are many influences on his music from his earlier work. His website detailing the visual works, *Drowningcircle*, can be found here (<http://www.drowningcircle.com> (B5)).

All of Broadhurst’s published recordings can be found on his Bandcamp page here (<https://julianbroadhurst.bandcamp.com> (B6)).

These words are from the notes accompanying his joint album with Jim Tetlow, *The Measure of Autumn* (<https://tetlowandbroadhurst.bandcamp.com/album/the-measure-of-autumn> (B7)):

This felt like the last of the early days, we were very close at this point, and yet we almost called it a day after this, the tenth album. It was recorded at my Isabel studio, where the autumn leaves were all about us. The title derives from a phrase I coined from looking at the state and colour of the maple trees in Allestree, on a hill near Isabel; 'I Measure the autumn by the maples.' It's an album about autumn - the American, 'New England' autumn, by way of the delicate 'folksy fiddle work, that Jim played, giving it a grounded earthy quality none of our other work has. The titles we chose, came out of the colours we felt. No electronic trickery here - just a heartfelt union of two musical adventurers, inventing the future as we went. Designing the Cover at Jim's studio in Leicester - I wanted leaves, so he brought a couple in from his garden - and whaddya know - maples. His fiddle, my power bass, and a double drum session. Tetlow and Broadhurst on a distant autumn day. Like shadows and sunlight on such a day, the music draws and pauses, muses and idles, races and bites. Perhaps one of the best things we ever did together.

Ibid.

It is time for metaphor, for ~~the~~/some rhizoanalysis. The responses of the research participants ~~stand~~ above. Or they would so stand if this ~~dissertation-assemblage~~ was a photograph of a moment in time. But time moves on; the ~~texts~~ have a life of their own within the rhizome. They are always already modified and changed by my (your) rhizomatic readings, by the diagramming. Each is always already changed by being juxtaposed with the others. How do the maps of the other abstract machines of this ~~dissertation-assemblage~~ relate to this Vignettes abstract machine? If a line of flight from the Cyborg abstract machine punctures and cuts the vignette, both are connected/ entangled. Tenuous and indeterminate boundaries are crossed. But which piercings, which slicings? In the rhizome there are infinitely many. It would be easy to become

despondent, like Borges's librarians. My rhizo-slicings are undertaken so that the rhizome may speak to me (you). Other cuts are for other readers. Our cuts may occasionally cross, or they may not. But we are always in the middle, in the thick of it. Some abstract machines actively summon lines of flight from others. It is as if they are gravity wells or positive and negative electrodes, bound to attract.

So aspects of the other abstract machines of this ~~dissertation~~-assemblage appear here and aspects of the vignettes appear elsewhere. The whole abstract machine has what Kosko (1994) calls "fuzzy boundaries". They are the boundaries of here, there, this, that, and now. Is what I say here about the four musicking/musickers's vignettes true of all musicking/musickers? That cannot be answered, because truth is meaningless in these contexts.

### *Analysis*

A question now arises: what is the best way to (rhizo)analyse the corpus of the respondents' work in the light of the philosophical world-view which I have elaborated in the other ~~chapters~~/abstract machines? It is clear from the replies of each of the respondents, particularly in respect of their interaction with technology, that they do not obviously see themselves as "cyborgian" in the terms which I describe elsewhere in this ~~dissertation~~-assemblage. They all emphasise the first person perspective in their replies: the "I" of musical production. It is part of the human condition for us to consider ourselves as largely independent, self-determining beings — the heart of the *Cogito*. Baum tells us that the notion of a "self" is pretty closely aligned with that of our bodies (2004: 405). But, he says, the self and the body are not identical, because in our DNA-driven lives, the interests of our genes and our material bodies sometimes differ. He goes on to say:

It might simply be that the notion of self is distributed. The program [DNA] must act like it is advancing the notion of self, it must plan as if it had a notion of self, but all this could, at least in principle, arise in a distributed program where it would be difficult to point to a localized module implementing a notion of self.

Ibid.



This view supports Clark and Chalmers's description of the Extended Mind (in Menary, ed., 2010). By allowing the possibility of a distributed "program" for selfhood, Baum's view is compatible with the somewhat more discretist ontologies which the questionnaire respondents describe, a processual ontology of the Entangled Network Space.

All of the respondents see themselves as "free" agents in terms of their musicking activities.<sup>80</sup> I shall examine their responses in terms of the nature of the agentive act and also in terms of the barriers/boundaries between persons as musickers and the works which they produce. Regarding the musical "work", perhaps the paradigm consideration of this concept in philosophical terms is provided by Goehr's (2007) text.<sup>81</sup>

There is an approach to rhizoanalysis which counsels against a territorialising explication of the data, a process which is described as the imposition of "imperial validity" (Scheurich 1997: 85). However, Latour (2005) tells us that the actors in a social field speak for themselves. Those actors, if human, may literally speak, or, in the case of non-human actors, speak metaphorically. In either case it is our duty, Latour says, to listen to them. The processes of the social realm (which includes musicking) consist in a combination of the actions of both human and non-human actors. Latour says, "[a]ction is not done under the full control of consciousness; action should rather be felt as a node, a knot, and a conglomerate of many surprising sets of agencies that have to be slowly disentangled" (ibid.: 44). This view would be commensurate with a broadly Deleuzian stance and also with that of Whitehead's process philosophy. Deleuze and Guattari tell us that the processes of territorialisation which result in a stratum being formed (always *pro tem*), "always has a dimension of the expressible" (1987: 43). Ringsmut (2018) uses the notion of the musical cyborg as a conceptual tool in the understanding of popular music production. This is a conceptual tool (within Latour's Actor Network Theory) which allows

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<sup>80</sup> But see the discussion on agency in the Entangled Network Space chapter/abstract machine

<sup>81</sup>In which she describes the emergence of the ontological notion of a musical "work" in Western Art Music around the year 1800. She makes the case that this application of the term "work" is one which is still in play today.

for a consideration of a shift in human-technology interaction in sound production, away from a human-centred perspective towards a more symmetrical view which integrates human and non-human actors alike (ibid.: 150). Deleuze himself acknowledges that there is no “indignity of speaking for others”, when he says in a conversation with Foucault:

We ridiculed representation and said it was finished, but we failed to draw the consequences of this “theoretical” conversion—to appreciate the theoretical fact that only those directly concerned can speak in a practical way on their own behalf. (Deleuze 1972, quoted in Sheridan, 1980, p. 114)

Sellers 2009: 153

In presenting the respondents’ voices in this rhizoanalysis, but without imposing too much of an authorial, authoritative stamp upon their words, I am engaging in an expression of what Sellers (quoting Jackson 2003) calls “rhizovocality” (2009: 212).<sup>82</sup>

This section is a place for descriptions, rather than explanations. The main tenet of Latour’s ANT is that, “actors themselves make everything, including their own frames, their own theories, their own contexts, their own metaphysics, even their own ontologies. [...] [I]f your description needs an explanation, it’s not a good description” (Latour 2005: 147).

With regard to the boundary conditions mentioned above, the boundaries around the respondents as musickers and their musical “works”, the respondents will speak for themselves; self-describe, the “dimension of the expressible” again (Deleuze and Guattari 1987: 43). The respondents were asked questions about their musicking under four different headings. The descriptions which they have provided have some common threads among them. It is the condensation of common threads which will help us to delimit the ontological boundaries of musical works and aesthetical considerations, as

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<sup>82</sup> “*Rhizo*, a prefix I borrow from Deleuze and Guattari’s (1987) image of the rhizome, captures the heterogeneity of vocality in a spatial figuration, accentuating its connection to other things through its very diversity. *Vocality*, in music theory, emphasizes the performative dimension of voice, its expressive power, its tensions of dissonant counterpoint, and its variations on thematic connections; it challenges our attention and demands deep concentration if we are to hear its nuances. *Rhizovocality*, as my combined, invented signifier, offers a vision of performative utterances that consist of unfolding and irrupting threads. These threads have the ability to irrupt and unfold simultaneously in “smooth, open-ended spaces” (Massumi, 1987), which compel poststructural feminist qualitative researchers to listen for texture and subtlety within and among discordant, muted, and harmonious voices, including their own” Jackson 2003: 707.

described by the respondents themselves. The assertion made elsewhere in this dissertation-assemblage that such boundaries are fuzzy and temporally limited does not preclude descriptions of more or less clarity, or fixity, in those temporally bounded states, especially where the actors themselves use such descriptions.

The rhizo-diagrams of aspects of the respondents' replies which appear earlier in this Vignettes chapter/abstract machine show aspects of the replies individually. What follows are textual analyses which juxtapose aspects of the responses, each grouped under a broad subject heading, designed to better describe some of the commonalities amongst and differences between them. They are as follows:

- Human agency and the involvement of technics in music creation
- The importance of technics as a means of musical distribution and aesthetical considerations
- Musical aesthetics as personal, individual choice, involving genre as opposed to music generally
- The perception of boundaries that delimit the musical "work" and music generally

At the conclusion of these broad subject descriptions I shall make some remarks on how the respondents' positions sit with regard to the broad philosophical stance which I have outlined elsewhere in this dissertation-assemblage.

### **Human agency and the involvement of technics in music creation**

All four of the respondents see themselves as individual agentive beings, as indicated by their habitual use of the personal pronoun "I". Each of them describes some aspect or another of their involvement with technology or technics in an assemblage of musical production. The degree of technical involvement varies between them, but also varies with them individually, depending on what aspect or stage of musical genesis they are discussing. For example, McLean acknowledges that his musical oeuvre cannot happen

without the moderating influence of a computer, whilst for Broadhurst, there is much more emphasis on the use of “conventional” methods of sound production in the gestation of his musical product.<sup>83</sup> McLean says, “I started playing around with trackers and sequencers as soon as I could afford my own computer” (M1). With regard to his music-making in conjunction with other musicians he says, “I believe to reach this point, we have to learn how to use the whole computer as a musical instrument rather than limiting ourselves to consumer software packages” (ibid.). Contrast that technical reliance with Broadhurst, who says, “I’m always playing things — stairwells — cabinets — any resonant object” (B1). And later he says (regarding the use of some drumsticks), “I play the sticks for the sound in and of itself [...] thus making the sticks themselves — not their target — the subject of resonance — the musical interest” (B3). Of course, Broadhurst does utilise technics, but this is foremost in the recording process, where he may modify some of the original analogue sounds for aesthetic reasons. I will discuss this aspect of his work further under the heading of musical distribution below. It should also be admitted that the “analogue” sounds produced by Broadhurst’s resonating stairwells and cabinets are no less technics than a computer, but just different technics, and so cyborgian. As I discuss below, what is important here are our variable relationships to technics and the functional dependencies between agency and technology.

Trandafilovski and Whiteside occupy an intermediate position, relying on electronic technicity in the production of some works, but eschewing it in other cases. Regarding his use of technology, Whiteside says, “For the EA<sup>84</sup> pieces I use technology because it is the easiest tool to create the sound worlds I want” (W1). But on other occasions, “Often when I’m writing a solo piece the music will be hand-written right up to the final draft or sometimes is completely handwritten and never typeset. [...] Technology is a tool to use

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<sup>83</sup> These remarks are made notwithstanding the discussion on the nature of technology and technics I make elsewhere in this dissertation/assemblage (see particularly the Cyborgs chapter/abstract machine).

<sup>84</sup> Electro-acoustic

when it is right, not something that should be used at all times” (ibid.). In this remark, Whiteside seems to be making a case *against* a cyborgian musical production aesthetic, by drawing a sharp distinction between himself, as composer, and the technological means of musical production. This echoes the remarks of all of the respondents when they draw similar distinctions between themselves, *qua* musickers, and the technics of musicking. Trandafilovski makes very well the distinction between technological use being sometimes efficacious and sometimes not, when he says, “As a composer, some of my very first steps were in fact completely tied to technology (being electroacoustic works). [...] [H]owever, I always write the music, initially, by hand, and only transfer it to Sibelius later. In this respect, using technology in the initial stages of producing a work would be a constraint for me” (T1).

Whether or not one subscribes to a description of the reciprocal nature of the agentic act which I outline elsewhere in this ~~dissertation~~/assemblage, what is clear from their words is that the respondents do see themselves as free agents *vis-à-vis* the decisions they individually take with regard to the genesis and production of their own musicking output.<sup>85</sup> For example, Broadhurst says of one of his recordings, “I would signal that I was ready to go and I was live. No false starts — I played the album into the mike. In the headphones I could hear a live ambience — so I played to it” [B2]. In McLean’s questionnaire response about his musicking, he uses the personal pronoun “I” no fewer than 26 times [M1]. Trandafilovski says, “I have not composed with a computer for a long time now, but I have used music notation software [...]” [T1]. An analysis of Whiteside’s response reveals a similar use of the personal pronoun to describe his musicking. He uses “I” 60 times. This is an example, “In *Ulation* I built a patch that actively listened to the player [...]” [W1]. The reader is referred to the questionnaire responses given earlier in this ~~chapter~~/abstract

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<sup>85</sup> In the Entangled Network Space ~~chapter~~/abstract machine, I discuss the nature of the agentic act. See, particularly, pp 85-87 regarding Malfouris, and McLean and Wiggins.

machine with regard to Whiteside, Trandafilovski, and McLean, and to Broadhurst's full responses contained in Appendix C.

### **The importance of technics as a means of musical distribution and aesthetical considerations**

Notwithstanding the use of technics in musical gestation and production discussed above, it is right to say that all four of the respondents are reliant upon technical solutions as a means to distribute their musicking output to their disparate audiences. All four of them sometimes do perform, or have in the past performed, their music (or caused it to be performed by others) to a live audience. But, increasingly, they rely on recording technologies and the mediation of the internet to make their music available to a wider spectrum of listeners than is able to attend a live event or concert. Indeed, some of their output is not capable of being performed in a "live" environment, due to the sometimes complex nature of the work in question.

Aesthetical considerations are also at play in the decisions the respondents take with regard to aspects such as recording quality and also the method of sound reproduction for the listener to the end product of recording and transmission or dissemination. With regard to this last point, Trandafilovski says this, "Of course, one can never control the conditions under which the work is then heard, and this can be a serious limitation (e.g., inadequate computer speakers, background noise and other distractions can hamper the way the music is received)" (T1). But he acknowledges the importance of technology as a medium, not only to actually distribute the musical product, but in terms of raising its profile to a wider audience. He says, "In terms of my performing activities (e.g., as part of the Kreutzer Quartet), the situation in terms of promotion and exposure is similar — social networks in particular seem to have gathered a huge momentum in the last few years" (ibid.). This raises again the question of whether technology is a "mere" medium, or whether it is integrally part of the cyborgian assemblage.

Whiteside also emphasises the importance of technology in distributing his work. But he also describes a hybrid situation, where technology enables a degree of interaction with the viewer/listener of/to his work. In this respect this was said about his collaborative audio-visual installation with the artist Dominika Mayovitch, “Matthew and Dominika have developed a way of presentation that subverts the standard gallery experience to increase the impact of the work and make it more inclusive, using digital technology and motion sensors, to create an interactive element to the presentation” (W3). As is evidenced in the analysis provided in Figure 27 in this chapter/abstract machine, Whiteside places much reliance on the use of social media platforms, including Soundcloud, YouTube, and Twitter to give his music exposure and actually to disseminate it. Trandafilovski makes very similar points with regard to these public platforms as a means to make his music available. He says, “[T]echnology is central to my professional communication (from e-mail and Facebook, to my website and exposure of my music online, e.g., released CDs which are available for order and download, live performances available on YouTube, Soundcloud etc.). The latter (online exposure through recordings) is, I would say, especially important for me” (T1).

McLean’s oeuvre is dependent on modern technics for its production. Much of the attraction of the live-coded music he produces has been its immediacy in the live environment. The custom has developed amongst artists in this broad genre of music of displaying the music-generating code as it is written, on live screen projections behind the stage or elsewhere in the auditorium. This practice of showing their screens sets up a special aesthetical relationship between musician and audience, which is, according to Magnusson, “rather unique in the performing arts” (M9). But some of the audience will have to take it on trust that there is an immediate relationship between the projected code and the audible output. Some of the audience may have little or no familiarity with the computer code. In June 2019 McLean performed at the Glastonbury festival for the first

time. It is harder to sustain Magnusson's claim of a special aesthetic relationship in such a large auditory environment.

Broadhurst's use of technics is important as a means of distributing his music to an audience and encouraging interaction between contemporary musicians. Regarding the former, all of his works are published on the Bandcamp platform, and regarding the latter, he is, in effect, the curator and convener of a Facebook group<sup>86</sup> which aims to instigate discussion about, and promotion of, contemporary music. Although nurtured in the world of live performance, particularly of his percussion pieces, Broadhurst acknowledges the importance of technical means of recording, producing, and sometimes modulating the sounds he makes in the studio. But that live ambience is still important. As he says regarding his recording of *Inventions for Shamanic Drum*, as he played into the studio microphone, "[i]n the headphones I could hear a live ambience — so I played to it — using its proportions — decay etc. to proportion my performance — my dynamics and timing" (B2). Tinkering electronically with the recorded sound of acoustic instruments is something which troubles Broadhurst from an aesthetic standpoint. He says this, "With me, if you think you can hear the sound of a cello — you can — but having said that, when I transform a cello's voice — what is it the voice of? I have spectrally transformed one instrument to another — but what have I done to authenticity?" (B3). He does not answer his own question.

### **Musical aesthetics as personal, individual choice, involving genre as opposed to music generally**

All four of the respondents situate their work as music, placing their output somewhere on the broad spectrum of what is considered to be music.<sup>87</sup> Although there may be some overlaps between them, particularly with regard to the tools they use in

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<sup>86</sup> The Facebook group IF - DCM (<https://www.facebook.com/groups/894449547326748/>)

<sup>87</sup> But see my discussion in the Future(s) *un poco accelerando* chapter/abstract machine of whether audibilia are even essential components of music.



the composition, production, and dissemination of their work, it is clear that there are also many distinctive aspects to their musical outputs. The term “genre” is problematic within current musicological debates, but, insofar as it may apply, the four musicians discussed here work in different genres, or, perhaps, within different musical niches. These niches or genres are products of personal, autonomous choices made by the respective musicians.

In Broadhurst’s case, these choices, of genre, stem from a desire on his part “to found things” (B1).<sup>88</sup> His ethos has been one of experimentation, but a novelty based firmly on experience. Regarding his first studio recording, he says, “I’d been playing for 25 - 30 years [...] I knew exactly what I was doing. Only difference was I was being recorded” (ibid.). He had had, as he puts it, “a lifetime’s love of the sonority of metal” (B2). So many of his works are based on metal sonority, “[f]rom tuned — bells, gongs, pianos, xylophones [...] to untuned voices or ideophones — whose indefinite pitches are an exciting mechanic for my music making” (ibid.). Most of Broadhurst’s output stems from his personal musical aesthetic, honed over a long period of sound production and recording. As he stressed frequently in his questionnaire responses, the utilisation of ambient environmental sounds has been very important in forming components for his musical inventions. By way of example, he describes his use of the effects of water dripping from a tap into a bottle. As the bottle filled, the pitch of the resonant splash changed. This happenstance struck Broadhurst’s imagination, and so he set the circumstances up again, “deliberately this time to record it” (B4). Subsequent manipulation of this sound electronically resulted in his piece *Solitaire* (ibid.). My rhizoid diagram (Figure 30) of Broadhurst’s musical influences and aesthetics presents in pictorial form a good distillation of the many words from his questionnaire responses.

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<sup>88</sup>Broadhurst says in his questionnaire response that he was the founder of a school of art which he called Elementalism (B1). He sees some of his musical output in similar terms.

None of the respondents has arrived at their personal musical aesthetic position without some amount of exposure to previous musical cultural artefacts. My general question to each of them asked them to comment upon these influences.

Whiteside specifically uses the term “genre” in describing his influences. He says, “Rock, metal, electronica, glitch music, spectralism and minimalism. All of these genres seep into every piece to a greater or lesser degree” (W1). Personal preferences also influence the decisions Whiteside takes regarding the methods of performance he specifies as a composer within a particular genre. For example, he will countenance the performance of an instrument plus live electronics piece, but not a piece involving an instrument plus tape (or other previously recorded material). He says that asking an instrumental player to perform in conjunction with a taped sound source is too constraining on the instrumental player. He says, “I feel that puts the player at a disadvantage to the technology” (ibid.). These internal decisions during the compositional approach to a piece are therefore reflected in the aesthetic of the finished piece, as presented to the listener. McLean’s aesthetic considerations are made in the live environment of the performance. As he says, he doesn’t approach his music-making with a particular plan, “I just pick a sound or two, play them in a loop, and see what it suggests to me in terms of the development of structure and timbre” (M1).

Trandafilovski acknowledges the effect of his previous musical exposure on his current work. He identifies some classical composers, some modern jazz performers, and even aspects of some folk music traditions, especially his native Macedonian, on his current compositional practices. His aesthetic is also coloured by association with musicians with whom he works today, particularly his colleagues within the Kreutzer Quartet. This association with particular musicians, what he describes as “maverick artists/personalities” (T1), is important in shaping his compositional output. But he takes an even wider view of what makes his current broad aesthetic stance, “I would

say that the overall social-cultural context in which we live permeates what we do, and in this respect, apart from specific influences, my musical activities are in many ways a product of the present” (T1). And that present is the end point, of course, of the cumulative processual acts described by Whitehead’s ontology.

McLean also subscribes to a view in which cultural immersion contributes to the flavour of his present musical aesthetic. He says that he has listened to a “wide range of music” (M1). He cites music in the genre of Intelligent Dance Music (idm) from the early 1990s as being a genre which has had an influence on his own live-coding work (ibid.). Some of the methods from the earlier idm genre, such as looping, and cutting and pasting of sound samples have found their way into the live coding environment, but it is perhaps the live nature of the written code which distinguishes the two musics one from the other. Like Trandafilovski, he also acknowledges the influence of working with other contemporary musicians in shaping his current output. He says, “[T]he flexible temporal structures in TidalCycles come from working with live artists and improvisers who are free from the ‘grid’” (ibid.).

### **The perception of boundaries that delimit the musical “work” and music generally**

I have written elsewhere<sup>89</sup> in this dissertation-assemblage regarding the notions of boundaries and entanglements, particularly in Hodder’s terms, the entanglements that subsist between humans and things, in the various combinations thereof which he describes. The respondents were not asked a specific question about what they considered the nature of the work to be, but some of their answers can only be interpreted as showing that they believe such boundaries to be there with regard to their own musical output.

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<sup>89</sup>See the Entangled Network Space chapter/abstract machine, particularly p. 82 *et seq.*

Whiteside uses the term “piece” and “work” in his answers (W1). In the compositional process he uses the expression, “[o]nce I get a clear sense of the piece” (ibid.). The fact that he uses denotational names for his work also implies that the pieces are distinct works (or at least, subsets of works), for example, *Ulation*, and *Always Ever Unknowable* (ibid.). He self-classifies his output in terms which imply that there are boundaries which delimit his work in terms of genre, e.g., “Spectral Minimalism” (ibid.) and of individual works, such as the pieces mentioned above. The fact that all of the respondents use platforms such as Soundcloud and Bandcamp for the promulgation of their work implies a division of their output into discrete works, since that is the only way to upload and store material to those platforms. This is perhaps a legacy of the historical nature of recorded music from the record industry dating back more than 100 years now. But Whiteside’s output is not confined to music as stand-alone work. He is happy to combine his musical output in cross-disciplinary work, as is evidenced by his audio-visual installation in conjunction with Mayovitch (W3) and his work for film-makers.

Perhaps the strongest sense of the rigidity of musical works is supplied by Broadhurst. Throughout his artistic life, whether in the field of the visual arts or music, he has felt an overwhelming need to categorise, classify, and catalogue his work. His process of “rigorous documentation” (B1) allows him to, “keep order over the chaos” (ibid.). He even regards the experimental, improvisatory experience as important in the gestation of a work. He describes percussing railings in the stairwell of his flat as “a work in lieu of becoming an actual work” (ibid.). He acknowledges the importance of individual agency in the construction of works, favouring the term “composer” for those making music (ibid.). He categorises works, and also parts of works. For example, he borrows terminology from the classical Western Art Music tradition, by employing terms such as “invention”, “sonata”, and “suite” (B2). One of

these coinages, “inventions”, are, he says, “a set of technically heightened pieces — which are not movements but rather parts in a suite” (ibid.). He realised that there were distinct and identifiable categories of his oeuvre, which required broad headings to accommodate them. These areas relate to subject material such as drum music (Dm), music for strings electronics and percussion (MSEP), phase music (Phm), electronic music (Em), and metal percussion music (MPm). He labels these areas of his production, “tranches” (B4). There are also, “[t]wenty six albums and a number of unallocated works, many of great interest, and all acknowledged and needing a home. As they were for the most part Works from field recordings - They got an album of their own, this one - Environmental music, Envrm - and a genre of their own too” (B6). That he sees boundaries between these individual areas of his work is indubitable, since he calls the tranches, “[h]ard distinctions” (B4). And he emphasises this point further when he says, “these five tranches emerge in the order they do because they define each other — by content — by exclusion — and others define themselves by combination — exhaustively as it were. And each has its own chronology” (ibid.). Perhaps redolent of my debate elsewhere in this ~~dissertation~~-assemblage regarding the difficulty of establishing hard boundaries<sup>90</sup>, Broadhurst makes this remark, “[t]he object of my search is to find out what music is by dint of what it is not” (B3). That is to say, in his mind, his ontology is reliant upon boundaries and distinctions

Trandafilovski is content to use the term “work” in the description of his own musicking activity and that of others. He describes works as containing certain essential elements, that which he terms “musical universals” (T1). These universals are “hierarchical organisation of the material, development and structure. The manner of application of these principles varies from piece to piece” (ibid.). They are, “very general underlying principles, and I explore them differently in every piece” (T2). Just

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<sup>90</sup> See my discussion of Derrida’s *Parergon* essay in the Entangled Network Space chapter/abstract machine.

as Broadhurst differentiates the individual tranches of his work by various descriptive criteria, so Trandafilovski uses his own classificatory terminologies. With regard to his piece *Five*, he says this:

Some concepts around which the music gravitates:

- Networks: harmonic (linking harmonic series, just intervals, quarter tones and equal temperament); textural; structural; within, and between pieces.
- Physical aspects: the acoustical properties of sound; resonance; idiomatic sonorities based on instrument construction and sound production.
- Polarity: from small scale organization of the material, to general concepts, and ultimately, to the complementarity between such concepts and instinct.

(T3)

McLean's music differs to some degree from the output of the other three respondents, insofar as his output is, because of the nature of live-coding, somewhat ephemeral. The music is generated "on the hoof" in a live environment, vanishing into the ether after performance. It is true that McLean sometimes captures the live production, or live streaming as a video document, which is often made available on platforms such as YouTube. But he does not seem to classify these artefacts as "works". They will be labelled with the date of production and often the venue. They will also name co-performers and other artists, but they do not constitute individual works as such. The output is described as a music which is, "helping to dissolve barriers around digital literacy and creating a causal performance experience for the data-driven age" (M8). It is this lack of barriers and the use of a fluid and open-source approach to the code which is the *raison d'être* of the Algorave movement and genre — a genre without works.

### **The vignettes responses considered in relation to (i) assemblages, (ii) rhizo-aesthetics, (iii) cyborgs, and (iv) Entangled Network Space**

As I remark in the previous subsection of this chapter/abstract machine, it is clear that the questionnaire respondents do not, on the face of their answers, necessarily

subscribe to the world-view which I outline in this ~~dissertation~~-assemblage, particularly in respect of the subject matter of the substantive ~~chapters~~/abstract machines: Cyborgs, Rhizo-aesthetics, and Entangled Network Space. But it is possible that this is because they have not considered their work in these terms. In this section, I examine some of what they say (and do) to see whether some of their approaches to their respective musicking practices can, in fact, be seen as commensurate with the philosophical views I put forward in those other ~~chapters~~/abstract machines. The broad question to be addressed is this: does the fact that people do not represent themselves in (a) particular way(s) (that they might not have even considered) invalidate an ascription of them and their actions in those terms? Or, to put it another way, does their own internal mental self-belief trump external third-person descriptions of them (us) and their (our) actions? Of course, the fact that assumptions concerning cyborgian notions are not specifically articulated by the respondents does not prove that they have not internalised such thoughts. But any analysis by me of their stances in those terms is at least as valid as any other description, and that is the potential value of the approach I take in this ~~dissertation~~-assemblage.

*(i) & (ii) Assemblages and Rhizo-aesthetics*

I shall deal, firstly, with the question of assemblages and their place in a broadly rhizo-aesthetic approach. I take this to be less problematic than making the case in respect of cyborgs and Entangled Network Space, to which I will return later.

The question of assemblages is one with a long philosophical pedigree, since it pertains to questions of ontology which have arisen since the dawn of recorded history. It is at the heart of Cartesian considerations concerning the nature of mind, the questions which are at the forefront of the *Cogito*, concerning the question of whether thought is a different category of thing to the physical body. The line which is asserted in this ~~dissertation~~-assemblage is that thought and physical bodies are not different

substances, but that they can be accounted for as varying manifestations of one single physical universe. This universe is well described in terms of an immanent world which is manifested by the coming-into being of assemblages, and the temporal modification and eventual dissolution of those assemblages in terms outlined by Deleuze and Guattari, and DeLanda. A good explanation of the processes behind assemblage formation and dissolution is provided by Whitehead (1929). The notion of assemblages and an epistemology of process philosophy can be applied to the broad headings which I considered in the previous subsection of this ~~chapter~~/abstract machine.

How can it be argued that humans generally, and you as the reader, I as the author, and the vignette respondents, are assemblages in the terms outlined in this ~~dissertation~~-assemblage? A similar question arises in respect of the artefacts which we, generally, produce, and particularly so in the case of the products of the respondents' musicking activities. How can these musicking products be considered in terms of an assemblage ontology? I refer the reader to the explication which I have laid out in the Rhizo-aesthetics ~~chapter~~/abstract machine. I do not intend to elaborate much further here on the first of these questions, regarding the assemblage nature of human beings. I find it difficult to conceive of any other way of seeing us as human beings. There are philosophers who make such a case with regard to the eternal and unchanging nature of musical works; that they exist in some Platonic transcendental realm, independently from Earthly manifestations of them. It is true that the ontology of the musical work tends to follow the prevailing ideologies of the day. So of course the producers of musical assemblages in the nineteenth century avowed an idealist ontology and a consequent transcendental potential for them. And equally of course, the belief in immanence and contingency in our own post-structuralist historical moment determines our interpretation of our own assemblages. It might be argued that in their responses to my questionnaire, the respondents take an avowedly nineteenth-century view of their



works. I say this as one potential analysis of their remarks on the nature of their own works, where they all (perhaps with the exception of McLean) describe their musicking output in terms of discrete works in terms described by Goehr (2007). But many musicologists today find assemblages of contingently determined parts a useful way to interpret works of the past and present. The respondents certainly describe the assemblage nature of their works, even if they do not use assemblages as an overarching descriptor.

I consider below some selected aspects of the respondents' work and make an analytical commentary in the light of the discussion in the aforementioned chapter/abstract machine.

Let us consider a work by Broadhurst: *Very Quiet Music* (Rh 204, MSEP 8) (B4). How is this work an assemblage? As with all of Broadhurst's recorded music, there are some components (sub-assemblages) of this piece which are necessarily part of the work, or, more precisely, are integral to the production of the work. Take any one of these sub-assemblages away, and the real-world work would not exist, and could not subsist over time. These are some of the sub-assemblages:

- the recording studio (the physical building, the room itself, furniture, lighting, electricity sockets, instruments, microphones, headphones, computer, the lack of an audience).
- the musicker.
- the compositional history (musical ideas, influences, the situation of the work within the composer's classificatory system).
- The internet (Bandcamp, as a means of storage and distribution of the work)

Of course, each of these (arbitrarily selected by me) sub-assemblages consist of myriads of further sub-assemblages, and further drilling-down into the nature of any of them would reveal what those sub-assemblages are. Others looking at the data might

identify other assemblages and sub-assemblages. By way of example, let us consider just one aspect; the compositional history. I have listed what some of those sub-assemblages might be in the bullet point above. Broadhurst enumerates some of the thinking behind this work's composition. He began to think about very quiet things as a response to a time when his own father had been ill, with an effect of the illness being a sensitivity to noise (B4). Broadhurst had been, "making a lot of very loud music - so [I] tried to imagine a music that for the most part would be as quiet as possible, a Very Quiet Music. Simply turning the volume down on any piece of music will quieten it, but I wanted a performance, as pianissimo as possible, a 'Very Quiet music'" (B4). It is, he says, "concert music for private performance, as a recording, where you have carpets to hush pins you may drop" (B4). Another sub-assemblage of this work is the recording studio. Regarding the "private performance" aspect of the recording process, Broadhurst elaborates that he wanted the piece to be recorded without an audience, because the extraneous noise of a "dropped pin" would have defeated the ambience he was trying to recreate and would have "ruined the recording." (B4)

I have said that McLean's oeuvre, the production of music by live-coding in the live environment, does not neatly lend itself to a music of classifiable and identifiable "works".<sup>91</sup> But the way in which the music is conceived of and produced certainly makes it amenable to an assemblage-based description. The same points made about the essential nature of the sub-assemblages to the ontological status of the whole assemblage in Broadhurst's musicking can rightly also be made here. Those arguments generalise to any and all musical composition and production. In McLean's case, here is another (arbitrary) slicing of some of the sub-assemblages which are essential to the production of a live-coded gig:

- A computer (running the TidalCycles programming language)
- A projector and screen

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<sup>91</sup> Although his recorded albums and video documents of live streamed events come close to a standard Goehrian description of works.

- A sound amplification system and speakers
- A musicker
- An auditorium (with audience)

The audience is an essential sub-assembly for e.g., an Algorave gig, since the essence of Algorave is dance music. As the performer, McLean relies upon the reaction of the audience, especially when dancing, to make affective changes to his live code to further modulate the musical output. Regarding that code, he says:

Of course what sounds and structures I make is of key importance, but just as important for me is *when* I make a change. Not too soon, not too early, and with its own rhythm that feeds into the anticipation of the listener. I'm also taking techno as a starting point, and seeing how far I can stretch it while bringing people with me.

M1

McLean emphasises the importance of all of the sub-assemblies to the coherence of the whole live-coded musical product. If any sub-assembly is removed, the code, the performer, or the audience, the utility of the final product is reduced.

As a final example of assemblies being present in the work of these musickers, let us consider Trandafilovski's compositional methods. The assembly in question here has these as very broadly described sub-assemblies:

- The composer
- The internet

Trandafilovski asserts that the internet, as a research tool, has become indispensable over recent times, to his compositional practice. His own musical background (principally as a violinist) means that he is familiar with the capabilities of stringed instruments (and their players). But, he says, an essential part of the preparation/research process for a new work is looking into instrument construction (mainly for non-stringed instruments), particularly, "the available extended techniques (especially ones that are idiomatic to the

instrument), and many musical examples” (T1). Each musical example is, of course, a complex of sub-assemblages.

It is clear from the above examples that the essential sub-assemblages range from something as apparently “simple” as a violin string to something as “massive” as the internet, in all of its complexity. But take any of the sub-assemblages away and the functionality of the musicking assemblage is deleteriously affected. This situation is very well described by DeLanda (2006 and 2012).

### *(iii) Cyborgs*

I turn now to the question of whether or not the respondents are (or may be considered to be) cyborgs in terms discussed in the Cyborgs chapter/abstract machine. Therein, I outlined an assertion that all modern humans are cyborgian in virtue of our inextricable association with technics. Writers who concur with this assertion include Clark (2003), Hodder (2012, 2014), Stiegler (1998, 2009, 2011), and (to a degree) Baum (2004). It is fair to say, in brief summary, of each of those writers that modern humans have become so entangled with, and so dependent upon, technics and technology broadly construed, that they cannot function independently from it. Indeed, it makes no sense to even consider humans minus technics. The concept is literally senseless. There is no escape from what Clark terms the state of human/technology symbiosis (2003). The Cyborgs chapter/abstract machine makes the case for accepting this symbiotic relationship in terms of our general lives, but below I consider specific aspects of the respondents’ musicking practices to make the case that they are, in these terms, musicking cyborgs, involved in the practise of “cyborg music”, the phrase used in the title of this ~~dissertation~~-assemblage.

The general case for us being cyborgs is well made out by the writers I mention above. But what is the case for us being specifically *musicking* cyborgs? It might be argued that there are trivial cases of musicking, such as whistling, non-linguistic singing, hand clapping, and so on, which do not involve the use of technics of any kind. But as soon as our

musicking does involve the use of tools or instruments, so begins our involvement with technics. Tomlinson (2015) traces our involvement with technological means of music production over nearly a million years of our emergence into modernity. From bone flutes and early ideophones, our current utilisation of computers and electronic machines to make, record, and disseminate music is at the end of a long lineage.<sup>92</sup> Certainly, music can be conceived of totally internally, in our mind's ear, as it were; whether this is by mental composition of new musical material, or simply a remembering of previously experienced music. It is arguable that, apart from the trivial instances I mention above, it is not possible to *make* music without recourse to technics — in short, without recourse to instruments. And the fact that these instruments are essential sub-assemblages of the musicking activity makes the case for that symbiotic relationship which Clark (2003) (and Hodder (2012, 2014)) describe. I mentioned earlier in this section that all four respondents consider themselves to be autonomous agents in their choices of musical composition and production. This is a state of belief which is part of the human condition. But it is the case, notwithstanding this belief, that they are dependent upon technics in some form or another for the successful implementation of their musicking activities. All four of the respondents identify a boundary between *themselves* and their *means of musicking*. They each choose to use thing x to accomplish musicking act y. But each of them, in their descriptions of their respective musicking practices escapes from this bounded conception, because boundaries are not barriers. When each of them asserts that they are “making music here, in this way”, it is a tacit acknowledgement that they are part of a cyborgian assemblage out of which music arises. This gets to the heart of my assertion that “musicking” is a verb (ontology arising from Whiteheadian processes) rather than “making music”. From their responses, it is clear that each of them wants to be “making music”. But the (false) opposition between the making, the maker, and the made, deconstructs itself in their acts of musicking. They make choices concerning which of the technics they engage with.

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<sup>92</sup> And, as I discuss in the Futures chapter/abstract machine, potentially, the start of an equally long future.

Modern musicking is a paradigm example of cyborgian entanglement between our biological bodies and technics.

McLean makes symbiotic use of computer technology, both software and hardware, and other electronic machinery in his musical output. The TidalCycles code, which was written by him, runs on a computer, whose hardware and software operating system was manufactured by others. This sub-assemblage allows him to make mental decisions about how to manipulate the code in real-time, to cause the computer and its associated sound production and amplification peripherals to generate the music in the auditorium. As I have said elsewhere, this reciprocal action as between the person and the technics constitutes an example of the cyborgian symbiosis described by Clark (2003). Broadly speaking, the computer/code machinic sub-assemblage is an instrument, a *musical* instrument, categorically no different from an historic bone flute, a drum, or a piano. But these “instruments” are more than discrete, stand-alone, components. They are indispensable as sub-assemblages (along with the performer) of the whole musicking assemblage. To have reached this point in his musical production, McLean says that he has had to learn, “how to use the whole computer as a musical instrument, rather than limiting ourselves to consumer software packages” (M10). This “live” use strengthens the assertion of symbiosis.

The other three respondents also describe in their questionnaire answers and elsewhere the extent of their dependent use of technics in their musicking. All of them rely upon technics to accomplish their work, from compositional processes, to sound production, recording, and dissemination.

Whiteside’s questionnaire replies deal in some detail with his involvement with technology and its importance to his creative work, from the use of simple pen and paper manuscript writing, through to complex electronics to manipulate and record sounds. Of the four respondents, it is perhaps Whiteside who is most aware of the balance that we as

humans need to make in our interaction with technics. An example of this is his remarks about the composition and playing of a mixed piece involving a live human player with a simultaneous electronic accompaniment. He states his desire that neither the human nor the machine should have primacy in the production of such a piece. In effect, he wants the machine to respond to the player and vice versa, in a mutually responsive set of feedback loops (W1). This cyborgian relationship is both a constraint and a liberator, because, “[i]t allows me to create sounds I couldn’t have made in the analogue domain” (W1). I refer the reader to Figure 27, which provides a good rhizo-sliced snapshot of the relationship between Whiteside and his involvement with technics. The diagram could reasonably be labelled “Whiteside as cyborg”.

Much of Trandafilovski’s recent musical output has been in what Whiteside (above) calls “the analogue domain”, that is, involving writing for, and performing with conventional orchestral instruments.<sup>93</sup> As I said above in the subsection dealing with assemblages, even such apparently innocuous considerations, such as the venue for music performance, can, rightly, be considered part of the musicking assemblage, and in that regard are as much a part of the realm of technics as the instruments themselves. Trandafilovski is very cognisant of many of these technical factors in his musical performances and compositions, taking account of factors such as the sonority of particular instruments (through researching their methods of construction), to the specific skills and idiosyncrasies of specific performers, and the acoustics of a given venue. (T1)

Like Trandafilovski, Broadhurst has chosen to conduct much of his musical performance in the (nonetheless technical) domain of the analogue. He places much credence on the authenticity of original analogue sounds, culled from, or manufactured in, the live environment. He goes so far as to create those sounds in various unusual locations, such as canal tunnels and church belfries (B3 and B2 respectively). But his

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<sup>93</sup> Although he has written and performed electronic pieces in the past. (T1)

music is reliant upon recording technology to create finished works. Since he works often as a solo performer, the many layers of sound which are compiled into the finished recording require separate recording and subsequent mixing. These processes require decision-making about the shape and structure of the finished sound, which is arrived at by technical manipulation of the recorded material. The word “finished” is used by Broadhurst in the context of being satisfied that the musical object is at a stage where he is content to upload it to his distribution platform, Bandcamp.

A common thread emerges when considering the approach of all four respondents; a desire to work in a way which balances the technical means of sound production and recording with their personal decision-making over their musicking. There is a desire not to let the technology be the sole driver of compositional and performative practices, a desire to retain some degree of human autonomy in this cyborgian realm. It is a fear about the loss of autonomy which drives almost all of Stiegler’s commentary in his three volumes of *Technics and Time*, which I refer to in several places in this dissertation-assemblage. The question of maintaining an appropriate balance between human wishes and desires and an exponential expansion of technologies (and Artificial Intelligence technologies, in particular) is addressed by Leonhard (2016).

#### *(iv) Entangled Network Space*

The chapter/abstract machine I have called Entangled Network Space deals with a number of abstract concepts which, when considered together, lead us to conclude that a temporally nuanced variation of Deleuzo-Guattarian immanent space, which takes account of fuzziness in spatial and temporal boundaries, whilst acknowledging the dependencies which exist between “things”<sup>94</sup> is an appropriate ontological space.

Hodder (2012) describes the many ways in which “things” and humans have become entangled, and makes the claim that we are only human in virtue of those entanglements.

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<sup>94</sup> Humans and Things, in Hodder’s terminology; *res verae* in Whitehead’s.



He does not make the claim that entanglements are temporally permanent, since he acknowledges that even apparently permanent states of affairs eventually come to an end. And so that makes his thesis compatible with Whitehead's "process" philosophy and also with Deleuze and Guattari's (1987) description of strata, and de- and reterritorialisation. It also is compatible with a reading of those authors who describe the assemblage nature of the world, particularly DeLanda (2006, 2012) and Vitale (2014). There is an overlap between consideration of entanglements with the other areas I have analysed, namely, the cyborg nature of us as humans and consideration of assemblage theory and rhizo-aesthetics. Nonetheless, it is worthwhile to consider some specific examples of entanglements which manifest themselves from the work of, and replies of, the questionnaire respondents.

An obvious area to consider is the entanglements which exist in the technics and technologies which the respondents utilise and employ. These entanglements subsist in *all* technologies, however simple or complex they may appear to be. The entanglements are best analysed in terms of how they present themselves in the various sub-assemblages which they contribute to.

Consider the assemblage which is Whiteside in compositional mode. As I discussed in the subsection above regarding assemblages, when he describes the composition of a solo piece, he says that the music will be hand-written, and often never typeset. This manuscript creation illustrates the entanglement between the musicker (Whiteside), the paper, and the writing implement (say, a pen). These are the sub-assemblages of the compositional assemblage here, each entangled with the other in the manifestation of the overall musicking assemblage. Obviously, they can all be further analysed to identify the component parts of each sub-assemblage. The paper could not exist without an entanglement with the trees which are used as the raw material for the pulp from which it is manufactured. The paper would not be white without an entanglement with the chlorine

chemicals used in its manufacture. If it is music manuscript paper with ruled staves, then it cannot exist without an entanglement with the inks and the printing processes used in its manufacture. It might be argued that the entanglements here are minimal. After all, it is conceivable that a person with the requisite levels of knowledge and expertise is perfectly capable of making his or her own paper and preparing an ink from plant extracts and a pen from a quill. And this is true (albeit not the method undertaken by Whiteside in the modern world!). But when we start to consider more complex technologies, such as McLean's musicking involving live-coding on a computer, it is apparent that the entanglements between things (the physical components of the computer and its code) and the many humans who are involved in its manufacture and operation, cannot be untangled without militating against the operation of the assemblage as a whole. Put simply, there is no single person in the world who has the knowledge, and access to the raw materials, to be able to build a working computer fit for the purpose of producing a live-coded music performance. It is this ever-complexifying and entangled world which gives rise to Stiegler's concerns in *Technics and Time* (1998, 2009, and 2011). The same arguments apply to the other technologies used by the respondents in their musicking activities, from electronic music production, through their use of recording technologies, and, increasingly, their reliance upon (entanglement with) the internet as a means of distribution of their musicking products.

There are also entanglements of a more ephemeral kind. For example the remembrance of the past musicking experiences of others which have come to influence their own current musicking world-views. These diachronic entanglements are very important, and it is not easy to conceive of how they can be undone. Whiteside, for example, describes how his exposure to earlier musical forms affects his current work. He says, "[r]ock, metal, electronica, glitch music, spectralism and minimalism. All of these genres seep into every piece to a greater or lesser degree" (W1). These past influences

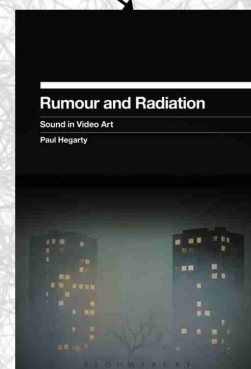
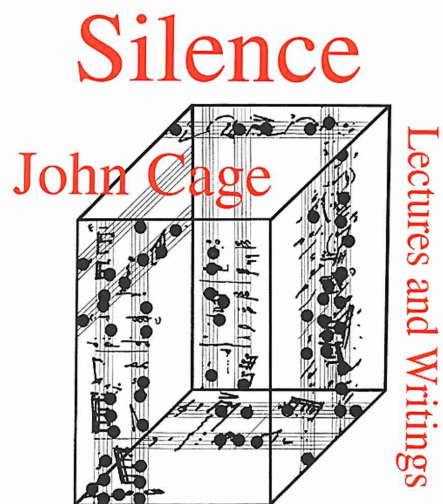
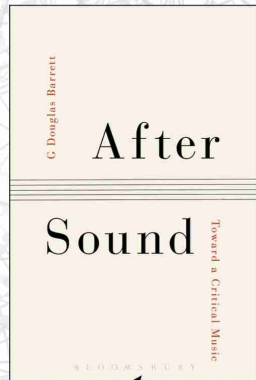
upon current musicking activity are examples of the diachronic entanglements which Hodder describes. Trandafilovski is very aware of the influence of the musics of his homeland on his modern works, “aspects of some folk music traditions,” as he puts it (T1). He says, “In my earlier work there were influences from the Macedonian folk music tradition — never explicit, but permeating the material in terms of physicality, timbre, rhythmic/metric and maybe even melodic features” (T1). Broadhurst’s oeuvre is dependent in part on a utilisation of natural environmental sounds. This entails an entanglement with various components of the natural and manufactured world, from the resonant acoustics of a room, or canal tunnel, to the physical sound spectrum of a church bell (B2, B3).

The nature of entanglements, and the way that they play out in Entangled Network Space, is that they are essential relationships between sub-assemblages. As DeLanda points out (2006 and *passim.*), if an essential (entangled) sub-assemblage is removed from the overall assemblage, the assemblage is degraded to the extent that it cannot function effectively, or, sometimes, at all. These entanglements of which I speak are manifestations of the processes which Whitehead’s philosophy is based on, and so it is the entanglements themselves which give rise to the ontological entities which are the assemblages. If there is no process, there is no thing.

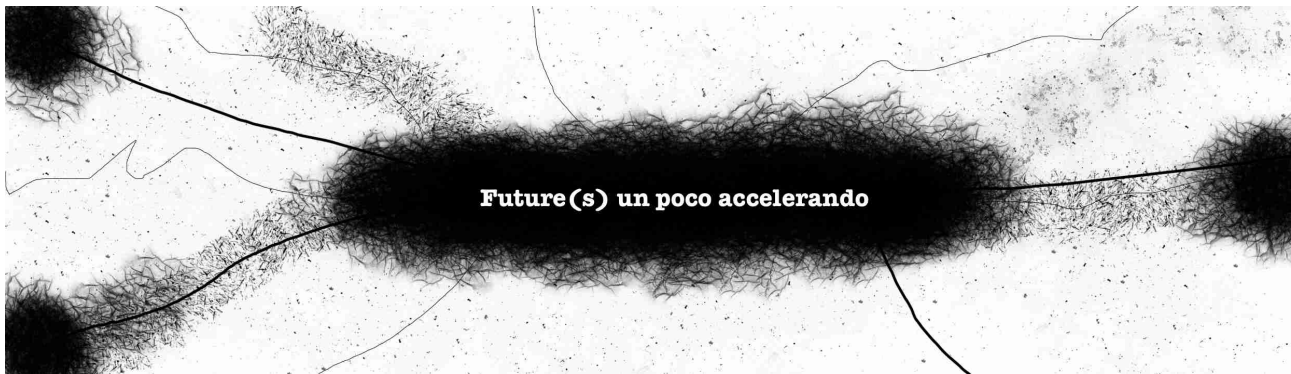
In the first part of this rhizo-analysis I have considered the work of the questionnaire respondents in the light of, *inter alia*, human agency, technical involvement, aesthetics as a question of personal (individual) choice, and the perception of musical boundaries regarding genre and the notion of the musical work. In the second part, I considered the responses in the light of my discussion in the other chapters/abstract machines of this dissertation-assemblage, particularly with regard to, assemblages, rhizo-aesthetics, cyborgs, and Entangled Network Space.

For a discussion of what the analysis of the vignettes material implies for the evolution of musicotechnological aesthetics, please see the Future(s) *un poco accelerando* chapter/abstract machine.

# Intermezzo VII



For description see pp. 229-233



—————> and... and... and... you arrive here on a line of flight...

### **Future(s) *un poco accelerando***

If the past is a foreign country where they do things differently, then, by extrapolation, so is the future. It is perhaps not surprising that very few writers care to speculate about musical futures. Pinto says this:

Futurism is a science that usually gets its predictions wrong because it is done in large by people who look at technology and numbers (and because it is just damn hard to see what's coming). Technology can change people's behaviour, but only if it is the right time for it, in the right context. Numbers can sometimes be misleading. If you only look at the big numbers you might miss the small ones which are the real indicators of transformation. The real challenge in futurism is to predict how our behaviour is going to change.

Pinto 2016

Certainly, there is a great deal of literature on human involvement with emerging technologies and a great deal of speculation about what that will mean for us as a species. Of the writers who do speculate about specifically musical futures I shall look at, *inter alia*, these: Harper (especially 2010), Collins and Young (2014), Eisenberg (2005), Kusek and Leonhard (2005), Joyce and Unterberger (2015), Defraene (2016), Grasmayer (2016a,b; 2017a,b,c). But it is implicit in the title of this research project that the question of a future *musical* aesthetic is addressed. What is the future of music? Will there be music as we know it today? Will our aesthetic relationship with music be the same as it is today? It is in the nature of speculation about the future that some predictions may come to pass and some may not. It is perhaps obvious that the further into the future one seeks to predict, the more the margin for error becomes. So when a writer makes some accurate

predictions from ten, or even twenty, years ago, many of which have come to pass, we should, appeals to authority notwithstanding, give that author a degree of credence.

Kusek and Leonhard, writing in 2005, ask us to, “Imagine a world where music flows all around us, like water, or like electricity, and where access to music becomes a kind of ‘utility’”. Not for free, per se, but certainly for what feels like free” (2005: loc. 127). At the time of writing (July 2019) I have a Spotify subscription which is enjoyed by six members of my family for £14.99 per month. My current household water bill is £20.66 per month. In a lengthy passage Kusek and Leonhard speculate ten years into the future from the time of writing. It is worth quoting at length to show just how prescient their prediction was:

Music Like Water. It’s the year 2015 and you wake to a familiar tune playing softly. It gets you out of bed and makes you feel good. As you walk into the bathroom, your Personal Media Minder activates the video display in the mirror, and you watch a bit of personalized news while you get ready for the day. You step into the shower and your personalized music program is ready for you, cued up with a new live version of a track that you downloaded the other day. It is even better than the original recording, so while you dress, you tell your “TasteMate” program to include the new track in your playlist rotation.

Kusek and Leonhard 2005: 2

They go on to describe the interaction between the user and the technology during the day, as the Personal Media Minder provides guidance and suggestions as to what music and other media the user “wants” to engage with, until, in the evening:

Back at home, you cruise into the evening with the house system sending soft dinner jazz to various speaker systems in your house, as you serve up one of your culinary specialties, then pay your bills. One of these bills is your media and entertainment subscription, which includes your monthly music, video, network, and communications charges; it’s always lower than your heating or water bill. Incoming calls from your friends blend into the programming that surrounds you, as you see fit. After dinner, you clean up, perhaps enjoy a couple of games with friends across your virtual network, and begin to wind down with some New-Age derivatives of Mozart’s original compositions, which you discovered late one night while cruising through the music sharing channels.... This, we believe, is a possible scenario from the future of music—a future in which music will be like water: ubiquitous and free flowing. Our views are not definitive, precise, or all-inclusive, but simply are snapshots of the future. In this future, music will be ubiquitous, mobile, shareable, and as pervasive and diverse as the human cultures that create it. Many of the already ill-fitting definitions of copyright and intellectual property and patent laws will be adapted to fit the “music like water” model that we propose—in a way



that ensures the enjoyment and benefit of society as a whole, and that allows all involved parties to prosper.

Ibid.

It is easily seen how some current technological functionality has brought these scenarios into actuality: Spotify, and similar music streaming applications, with their algorithmically generated playlists, Google Glass, various bio-feedback applications, and programs which utilise our web-use activities and geocoded data to tailor digital offerings to us. The current pricing structures for streamed content bring to fruition a prediction of Kusek and Leonhard from 2005. They say, “We believe that ‘paying for the experience’ will be the prime paradigm behind the pricing of music going forward—a complete turnaround from the fixed value paradigms of ‘mechanical reproductions’ and CD prices” (ibid.: 145). They foresaw the demise of physical media as a means of access to music and other forms of entertainment, “Forrester Research analysts, for one, predict that physical media like CDs and DVDs will soon become obsolete as consumers multi-access entertainment through computers, cell phones, WiFi, PDAs, and other portable devices” (ibid: 146):

Smart software and music-specific search engines will replace the good old radio as the primary way that people learn about new music. When all the music ever recorded can fit on a hard drive costing less than \$400—when there is more free music available than you could ever listen to in a lifetime—the name of the game will be finding the music that you like.

Ibid.: 153-154

Kusek and Leonhard speculated on the “Unobtrusive Expansion of technology” (ibid.: 166). They say:

Sophisticated and almost-always on communication has become a default mindset for many of us. [...] Digital media [will be] woven into every part of our lifestyle. [...] Cell phones are quickly turning into omnipotent mobile computing devices that take pictures, play music, stream videos, manage contact data and calendars, surf the Web, connect us with others, and direct us to the nearest ATM. Talking about unobtrusive - imagine your wrist-watch having these capabilities.

Ibid.: 166

The Apple Watch was introduced in September 2014.<sup>95</sup>

Regarding music’s ubiquity, Pinto says this:

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<sup>95</sup> [https://en.wikipedia.org/wiki/Apple\\_Watch](https://en.wikipedia.org/wiki/Apple_Watch)



Technology changed the way we listen to music and as a result we changed the way we feel about it. We should start considering that people are no longer loving music, but that they just like it. Or are even just using it. But what is more important is that only when we understand these changes, will the music industry be able to create services, products and business models that are in tune with this new listener.

Pinto 2016

Grasmayer says, “Throughout the last 50 years music has become increasingly personal. It shifted from family piano to bedroom record player, and then from bringing albums in your Walkman to your own personal playlist on your smartphone” (Grasmayer 2016c).

Streaming of digital content is now in the mainstream. It is the new paradigm in music and video access. Kusek and Leonhard also predicted that the relationship between music consumers and providers would be a reciprocal process, “In a future where all content is quickly available on digital networks, it will simply be easier to employ viral and vastly exponential ways of reaching a music fan who may be a good match with any given artist” (Kusek and Leonhard 2005: 154):

And we don't mean just *publishing information* about new music, but actually proactively and with high accuracy *steering* you to music that you will very likely enjoy because of your previous listening patterns, download or CD orders, membership in peer groups, concert ticket purchases—in short, because of your lifestyle and *because of who you are*.

Ibid.: 154

Pinto puts the changing relationship between producers and consumers which technology has engendered thus:

So, the music industry has changed. If you haven't been living in a cave for the past 15 years you probably noticed. For those who need to catch up, here are the 3 main points that summarize it:

increased access to the means of production;

increased access to information;

democratization of distribution channels.

[...] Never before in history have we had access to so much music, for such a low cost and at such a high speed. The access difficulty, which in my opinion was a key element in keeping our preferences so narrow, was eliminated from the equation. At 15 (in 1998) I had a proud collection of roughly 100 CDs as a result of the musical choices I made. Today a teenager with the same age has access to humanity's music library only a few clicks away.

Certainly, all four of the vignettes' respondents have taken advantage of the three categories which Pinto describes. The near-ubiquity of modern technological production and recording has facilitated their work, with access to internet-based distribution platforms the foremost amongst them.

Grasmayer tells us that the technological revolution applies to other aspects of our lives too:

We have started using music to augment our everyday lives. The convenience and effectiveness of enhancing situations has increased tremendously in the era of smart devices and all-you-can-eat streaming services. Parallels can be found in unexpected places: from personalized drugs, artificial intelligence, and the creation of extra senses through technology.

Grasmayer 2016c

The music technology companies are getting cleverer too. Spotify is not the only player in the adaptive music market. Grasmayer gives the example of “Melomics” which describes itself as “capable of composing contemporary classical music without human aid”<sup>96</sup> (Grasmayer 2016). The emergence of the power of the consumer which Kusek and Leonhard were writing about just over ten years ago has now come to fruition due to the enabling technologies available. The “remix culture” talked about then is now with us. We “live inside it” (Grasmayer 2016d). He goes on, “It has become so easy to alter and distribute works that recorded music is used as a medium to rapidly communicate creative concepts with groups of peers, primarily on Soundcloud” (Grasmayer 2016d). This is the experience which Burland and McLean describe in regard to the Live Coding genre (Burland and McLean 2016).

Grasmayer even envisions adaptive and auto-reactionary music production as having therapeutic value. He cites the example of Google Music's latest developments. Their goal is, he says:

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<sup>96</sup> If we exclude those who write the algorithms, that is.

To deliver the most relevant soundtrack for each moment. They can do this by having a lot of data about their users, and then interpreting that data to make guesses about what a user is up to. The user's interaction with those playlists (or lack of interaction) also generates data and may show when an assumption was wrong. Now, through machine learning, or what's sometimes referred to as artificial intelligence, algorithms can learn from this feedback and improve themselves.

This means that over time, Google Music will get better at recommending the right music. And if we're going into a future where we use music to augment our experiences and have our own personal soundtracks, then these algorithms will get increasingly apt at composing exactly the right soundtracks to boost our performance. In that sense, music may function as a type of precision medicine.

Grasmayer 2016c

We saw Stiegler's description of epochal redoubling above.<sup>97</sup> Since the past and the future both start now, it seems reasonable to extrapolate from the fairly recent past into the near future. Harper refers to the music-technological empowerment of the general public as a revolution:

It enables the shift in power in musical production and innovation from the few to the many. Accordingly, the locus of that innovation shifts from the lesser to the greater and ultimately to the infinite. This had been one of the most exciting developments in musical culture in the last thirty years, and the resulting accomplishments of musicians not trained or working in traditional professional circles have been growing steadily in significance. These people, and ultimately all of us, are the composers of the twenty-first century. Many of them have already taken small steps towards establishing a new image of musical modernity.

Harper 2010: 189

This egalitarianisation of the means of musical production is referred to as "Music 2.0" by Collins and Young (2014). They say that the commercialisation of music has always been a dynamic process and part of an:

evolving system. The twentieth-century industrialisation can be seen as a moment of stability that arose as a consequence of the specific technical and social affordances of the time - and contemporary changes are simply the inevitable result of musicians exploring the possibilities of the new.

Collins and Young 2014: 132

They point out that the resistance to any deterritorialisation of the current modes of commercial music production is strongly contested, by those institutions whose very existence depends upon the maintenance of the status quo (ibid.: 132). They agree with

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<sup>97</sup> See the Cyborgs chapter/abstract machine

Harper's view of the establishment of a new musical modernity when they say that, "Even as institutions reinvent themselves — and are eventually displaced by more responsive ones — our relationship with music will expand inclusively rather than exclusively" (ibid.).

In Music 2.0 there is sometimes no need for the old order of commercial intermediaries.

The technological revolution of the late twentieth and early twenty-first centuries now means that truly independent music can thrive and for business models that were previously marginal now to thrive (ibid.: 133):

For audiences there are now more ways to discover music than ever before. There is a greater range of music available, more ways to engage with both music and musicians and a depth of relationship with music that has never before been possible. And for musicians, the same expansion of affordances holds true in the other direction - it has never been easier for someone with musical talent to display it to the world.

Ibid.

Perhaps the closest to the "old order of commercial intermediaries" amongst the vignettes' respondents is Trandafilovski, who through his performing practice with The Kreutzer quartet, utilises the standard recording companies' means of production and distribution. However, as he describes in his questionnaire responses, he is also not averse to the "democratized" distribution opportunities which internet platforms provide. The other three respondents rely almost entirely upon these platforms for distribution of their work, and so are full partakers in the dynamic processes of "Music 2.0" which Collins and Young describe.

Harper describes the new musical avant-garde in the arena of electronic dance music. It is, he says, "a scene that's been nurturing the style-based exploration of modern music spaces in all their detailed potential for over twenty-five years [...] as the music of choice for young composers and intellectuals" (Harper 2010: 189).<sup>98</sup> Technology is now allowing music-making which is re-colonising what Harper calls "infinite music space" (ibid.: 191).

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<sup>98</sup> E.g., McLean as Yaxu.

This notion has clear parallels with the Deleuzian Plane of Immanence. It is a musical space where:

The relatively secret and differentiated musical objects or images of music we know can be 'dequantised' back into that infinite continuity and unified there, that they are continuous with each other, and with many other undiscovered structures 'between' them. [...] Thus they can all be comparable and conceivably equal, seen on the same terms rather than through the traditional hierarchies.

Ibid.

This new, dequantised music is technology-dependent. Harper claims that the new avant-garde doesn't break with the traditions of the avant-garde from a century ago, but, rather, extends them to the "*n*th degree" (ibid.: 192). The key difference in the new avant-garde is its technological resources. Harper says, "Infinite music in its truly infinite sense relies on technology to actualise it" (ibid.). He acknowledges that this is a relative dependence, since music has always been dependent upon technologies, "whether physical, mental or social, ever since the first drums and bone-flutes" (ibid.). The responses of the vignettes' participants can be seen in this light, with their utilisation of technologies in the analogue domain (particularly Trandafilovski, Whiteside, and Broadhurst) through to McLean's total reliance upon computer technologies.

Bostrom speculates that soon the transhuman will be listening to "music that is to Mozart what Mozart is to bad muzak" (Bostrom in More and Vita-More, eds. 2013: 32). Machines already inform our listening habits: e.g., Spotify suggests playlists on the basis of algorithmic manipulations of our previous listening experiences and our preferences. What will be the status of music when technological advances enable everyone to be able to 'hear' the complexities of music in their 'mind's ear' at the level of a Beethoven or Mozart?

In Robinson's (1998) science fiction novel *The Memory of Whiteness*, he describes a fantastical orchestra of the thirty-first century, created by a physicist, Arthur Holywelkin, "born on Deimos in the 30th century, who in his final years created the orchestra that bears his name. His Ten Forms of Change ushered in a new paradigm in physics, unifying

relativity and quantum mechanics with a ten-dimensional universe and sub-quark particles known as glints” (Robinson 2018). Holywelkin’s orchestra is about sounds, some of the compositions for it being based on his equations. The orchestra is taken on a grand tour of the solar system. In the final incarnation it is under the command of its ninth master, one Johannes Wright, “blinded at a young age as the result of nepanathol withdrawal; during the withdrawal he hallucinated a conversation with Holywelkin. He embarks on his first grand tour of the orchestra as Grand Master, playing original compositions based upon Holywelkin’s equations” (ibid.). Wright says:

I move into realms of my own, shifting from passage to passage, playing the music I have always searched for, the half-remembered snatches and majestic chords that I have woken up from in the middle of the night, and wished I could recapture; and now the lost time has returned, the lost music is mine. The architecture of Bach, the power of Beethoven, the overwhelming beauty of De Bruik, all confused into a marvel of thought: think it and hear the Orchestra play it at that very instant. The performer the instrument, so that my hands fly about the control booth, my feet, elbows, forehead, all playing, while the essential / floats out of the body to observe and to listen, astonished to rapture.

Museum of Imaginary Musical Instruments Blog 2018

The Museum of Imaginary Musical Instruments Blog’s author goes on to say:

Wright discovers the true potential of the instrument. From a machine that removes one from the act of making music, the Orchestra becomes a seamless extension of the mind, allowing music to flow from thought into reality. In an effort to realize “a musical analogy for the world that was precisely accurate,” Wright uses the Orchestra to compose music based on the mathematics of Holywelkin’s grand unified theory. Holywelkin’s Orchestra thus merges not only mind with machine but also art with science, making possible a music that will explain the universe.

Ibid.

It is a description of a world where, “the twinned nightmare of technology dehumanizing music and the dream of it liberating the music within remains much the same” (ibid.). I do not know whether Eisenberg was familiar with Robinson’s work, but there is a similarity of approach. Eisenberg (2005: 217-240) describes technology allowing music to become synchronously completely tailored to an individual’s cultural and emotional needs; a musical world where nothing is the same twice. Such a state of affairs will mean that there is such a melding of the mode of music’s production and its consumption that notions of the

individual work standing in some external relation to the listener will become obsolete.

Music's production and consumption will be synchronically co-terminous.

Grasmayer asks, "Will we all be musical cyborgs one day" (Grasmayer 2016c)? Artists are often innovators in finding adaptive ways to use new technological developments. He says:

As new technologies are developed, new interfaces are explored, like the Mimu gloves<sup>99</sup>. In designing instruments, one always has to consider the human body and its limits.

This means that as it gradually becomes more normal to integrate technology with our bodies, so will it become more normal to be able to interact with instruments through this embedded technology.

Grasmayer 2016c

In the light of these current developments, is Eisenberg's "fantasia" (Eisenberg 2005) far-fetched? This lengthy quote elaborates on the scene-setting of music 2.0 which was described by Harper, and Collins and Young, and outlines some of the logical future developments in the kind of technologies of which Grasmayer speaks. Eisenberg describes some future musical experience, the experiencer is enmeshed with technology and listening to a "child prodigy" called Starbuck, similarly enmeshed (Eisenberg 2005: 222). Eisenberg has his protagonist listening to one of Starbuck's rehearsals for an upcoming concert:

When I ask, boldly, if I can listen for a minute, she says, 'Well, I guess. For a minute.' [...]

I look around for the instrument.

What do you play?, I ask.

She looks blank.

Piano? - I prompt her. Violin? Electric bass? Sousaphone?

She laughs.

'You must be even older than you look,' she says, which I take as a compliment.

She opens a blood-orange door, pulls out a necklace with a silver pendant, and puts it on.

'Let's see: I'm guessing you like European music from the pre-electronic period. I'm guessing you like - Mendelssohn.'

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<sup>99</sup> <http://mimugloves.com>

Softly, she starts to hum the andante theme of the Mendelssohn Violin Concerto. A second later her voice is doubled by a violin; two seconds later, the room fills with the sound of a symphony orchestra.

As the theme comes around again, her humming changes, as if nudging the music in a new direction. Imperceptibly, the concerto mutates into 'I Don't Know How to Love Him,' and the soundtrack album of *Jesus Christ Superstar* is resurrected. It's the first time I'd noticed the kinship of the two tunes.

Ibid.: 222-223

They listen, in quick succession to a century of music: dub, techno, Krautrock, jungle, demo, Beta-Block, HongKong ringtone, Gitmo torture rock, Indonesian terror-trance, Falun Ganja, Atlantis blues, Orbit-Favela, even a neo-turntablist scratch-and-stutter (ibid.: 223):

'This is hopeless,' Starbuck says. 'Let's start again.'

We are back with Felix. Now the changes, as they develop, are so subtle I hardly notice them, except in aggregate. Still less do I fathom how Starbuck's barely audible vocalisations make them happen.

First the violinist, who started out sounding like Grumiaux, begins to sound more like Kreisler - that touch of delectable *Schmutz* - but in hypermodern sound. Now the music seems deeper, richer: is it added reverb or a doubling of the string parts? Perhaps; but there are new parts too. Inner voices, washes of colour, modal harmonies. A hint of Mahler, a splash of Debussy. Og Chinoiserie. Alien instruments have entered: a qin perhaps. An erhu. A gamelan.

Instead of trying to escape the music's sweetness, or temper it with astringency, Starbuck has plunged into it, deepened it. The result is a musical sugar rush, a high very nearly hallucinatory. Soon (How soon I'm unsure, since instead of keeping time, this music seems to dissolve it) the melody of the andante lingers only as a memory, or a dream. Or perhaps the music I'm hearing is itself a dream: Felix's opium dream, if one can imagine him prey to so bad a habit.

Starbuck is a prodigy - a virtuoso of no instrument, and of all instruments. But her real instrument - the technology embedded in her pendant and in the processors and databases it's linked to - is widely available and widely used, even by people of limited 'talent.' The line between 'musicians' and 'listeners' seems to have been erased.

Ibid.:223-224

Implicit in Eisenberg's fantasia is that his protagonists will be listening to actual sounds, *audibilia*. But are audibilia necessary for music? After all, we hear music in our heads. The notion of an ear-worm is familiar to us all; that snippet of a melody or rhythmic passage that will not fade from our consciousnesses. And we sometimes dream of sounds, voices and music for which there is no direct phenomenological audible stimulus. As Sibelius said to Jalas, "I often conduct an orchestra in my sleep; my orchestras are so



huge that the back desks of the violas vanish into the horizon. And everything is so wonderful” (Sibelius 2018). “*Nicht diese Töne!*” wrote Beethoven to preface his setting of Schiller’s ode. But he was completely deaf by this time. Did he not hear the music of the Ninth Symphony? Perhaps we might speculate that Beethoven’s remark was a suggestion that sounds *per se* are not required for music. “*Sondern laßt uns angenehmere anstimmen, und freudenvollere*”.<sup>100</sup> Perhaps those more pleasing and more joyful sounds are not audibilia at all.

O’Sullivan cites Haraway in pointing out that we are already part of a Deleuzian folding, inasmuch as “new prosthetic technologies involve the folding of silicon assemblages ‘into’ our own carbon ones (O’Sullivan 2006: 142).” Other foldings happen too. Certainly, the silicon technologies contribute to the cyborg state, but other technologies too.

Pharmacological and narcotic folds, cultural folds, food folds; all of these, and more, can contribute to cyborgian mind states. Joseph (2011) discusses the category of “Biomusic”. He refers to the work of Eaton in the 1960s and ’70s in the development of technological means to stimulate psychological responses in subjects, through the means of manipulated sounds, but including direct stimulation of brain regions with other “inputs”. Joseph says, “‘it is conceivable,’ writes Eaton, ‘that music in the future will dispense with sound altogether and become an art of induced psychological, physiological states’” (ibid.: 134). Eaton’s aim was to have “music” (or the musical effect) controlled by feedback loops from the human subject to the composer (human or mechanical) of the input stimuli. He says:

The concept of real-time biological feedback control is one of the most powerful tools ever conceived. It is possible to program psychic and physiological states of powerful, predictable and repeatable nature. There are applications in virtually every area of human activity; music, visual arts, psychiatry, medicine, education, religion. It is within the state [of the] art now to produce systems which will program a music listener through any desired series of psychic states as defined by physiological parameters.

Quoted in ibid.: 135

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<sup>100</sup> Let us instead strike up more pleasing and more joyful ones!

These technologies were put to malign use. Joseph documents their use in torture as practiced by arms of the United States' security apparatus and by other regimes in recent times (ibid.). Torture constitutes a strange kind of aesthetic.

Other possibilities present themselves, especially as technologies continue to evolve. Recent developments in artificial intelligence research have seen AIs evolving their "own" languages as a means of communicating between themselves (Griffin 2017). What might happen to notions of music(king) if these intelligent entities are able to develop their own ~~internal~~ sense of a musical aesthetic? And would those internal aesthetics be translatable back into the realm of human music(king) experience? After all, as Barrett points out, it might come as a surprise, but the very notion of music as sound is a relatively recent invention. With its roots in the writings of a group of German thinkers in the early 1800s, the equating of music with instrumental sound severed from language and social meaning, which was later termed "absolute music", has remained with us to this day. It is possible that this view of music(king) constitutes one of Tomlinson's "epicyclic, local burgeoning(s)" (Tomlinson 2015: 246). After all, for most of documented human history, music has been either absent or constituted in methods other than those of absolute instrumentalism. Indeed, as Barrett points out, nowhere within the premodern trio of *harmonia*, *rhythmos*, and *logos* is there any specific reference to sound (Barrett 2016: 90)? Barrett poses the question, "So what, if not sound, is music, broadly conceived" (ibid.: 5)? He insists that, "Music is a historically mutable, contingent, and ultimately revisable art form that, when radically conceived, exceeds any strict adherence to specific mediums or material forms including sound itself" (ibid.: 5-6). Even a critic such as Dalhaus has said that absolute music is historically contingent, "What has come about historically can be changed again" (Dalhaus 1989: 8). And such a change, Barrett says:

could represent a radical shift in musical thinking and practice. Music could become untethered from sound as an autonomous medium, left, at an extreme, without sound. Self-reflexive conceptual and discursive strategies could take the place of a (premodern) musical *logos*. Sound could be

deprioritized in favor of the wider methodological scope necessary to formulate music as a critical art practice. No longer adherent to the primacy of sound, this “music beyond sound” could finally become a music *after sound*.

Barrett 2016: 6

This world of critical music after sound, Barrett posits as “a conception of music as an expanded field of artistic practice encompassing a range of different media and symbolic relationships” (ibid.: 7-8). And, in a nod to a rhizomatic view of music, he says, “Critical music is not a fixed object of study, but rather a mutable site for resistance; it recomposes music’s codes, materials, and forms and listens for strategic assemblages and formations in their making” (ibid.: 8). Many of the factors which have historically and traditionally come to bear on the production of musics and musicking generally are still present in the complex assemblages which Barrett’s critical musics envisage. If we consider these processes in terms of Vitale’s world slices, the fractal nature of the assemblages just envision different perspectives on what would be considered as music. In sonic musics, the rich clubs which constitute central nodes in the musical entity consist mainly in sound(ing) entities, whereas the musics after sound will have as important nodal points “[...] new forms of instrumentality [which] refigure music as a site for political agency by challenging and exfoliating its forms” (ibid.: 8).

McLean, the subject of one of the vignette studies in this dissertation-assemblage provides an example of re-purposing a means of musical production to facilitate an output in a non-sonic medium. The software which he designed (TidalCycles) principally for the production of algorithmic music has been put to use to codify the production of a woven fabric on a traditional hand-weaving loom. He describes the method thus:

During our recent project residency at Textiles Zentrum Haslach, we had the opportunity to work at the TC-1 looms there. As an experiment I used my TidalCycles software, which is normally used to create music, to create a pattern of ups and downs for controlling the loom. TidalCycles takes a pattern-based approach to music making, and so this was quite straightforward; I simply made binary patterns, of black and white, and made sure the results fit to a grid.

McLean 2018

He describes the close relationship that the process of weaving has to music production:

I was surprised at how much fun this was, especially the weaving part, where I got in a bit of a single-minded trance. Others commented on how they disliked the TC-1, because it was inaccurate, slow and 'distanced' yourself from the weave because you didn't create the shed directly. But this really felt like making techno music – you don't use acoustic instruments directly in the same way, but for me this puts more emphasis on feeling the sound — or in this case the fabric – itself as it emerges from the machine. I just love the process of putting numbers in and getting something very physical out, as part of a creative feedback loop.

Ibid.

There are parallels here with conventional musicking: certainly what McLean is doing here involves (without sound) harmonia, rhythmos, and logos. People were able to watch the weaving process if they wished, like a conventional audience. McLean disseminates the product, images of the cloth and images of the loom, for example on the blog post quoted and also on social media platforms such as Facebook. As he does with his music production, he makes the computer code (which is equivalent to a score) freely available as open source material. In the spirit of widening the application of code to other areas of pattern-making than just sonic productions, McLean has founded a festival called Algomech<sup>101</sup> which engages, inter alia, with events such as drum robots, hacked accordions & gramophones, live coding, e-textiles, kinetic art and sonic machines, exploring unmaking as a form of resistance. These are some examples of the type of mutability which Barrett speaks about.

How else might music(king) achieve this mutable status? Barrett considers Goehr's analysis of Cage's 4'33" where she claims that Cage's contingent use of indeterminacy is actually situated firmly within the notion of *Werktreue* (Goehr 2007: 261 and quoted in Barrett 2016: 23). Goehr allows that material changes to the way music is (or has been) performed and "packaged" (Goehr 2007: 262) do not detract from the notion of *Werktreue* (broadly construed as compliance with compositional intentions), because they have not really brought about changes "in the conception of notation, performance, creatability,

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<sup>101</sup> <http://algomech.com/2017/>

autonomy, repeatability, artificiality, and product” (ibid.), Cage-like claims to indeterminacy notwithstanding. Barrett, however, sees Cage’s indeterminacy from another angle, as an ushering-in of “*interpretation* in the widest sense” (Barrett 2016: 23). Performing a score, Barrett says, becomes an act of interpretation in the literary sense (ibid.). And in a manner mirroring Barthes’s “birth of the reader” Barrett says:

Consider the potential consequences, then, of a “birth of the performer” in contemporary music art practices: rather than a mandate from the composer, the score may instead provide a kind of text to be inhabited, to be activated, to be *used*.

Ibid.

And, obviously, under such a regimen, we may also begin to conflate the notion of “performer” with other aspects of musickers, the tentacles of the compositional/performative assemblage extending into the nodes of, what has traditionally been, in musical terms, the audience.

In truth, the reception of music has always been a multi-valent (fractal) process.<sup>102</sup> The fractal nature of music(king) actually means that indeterminacy is fundamental — it cannot be avoided. Beuger says, “Asking someone to play an ‘a’ of a certain duration, a certain volume and a certain tone colour is like asking him to write the number pi: he’ll do something more or less approaching something else” (Crimp 2002, quoted in Barrett 2016: 49). Cage simply codified the inherent indeterminacies, which demonstrates:

[t]he breakdown of the relationship between the score and the resultant performance of a work, [which] suggests a shift in focus from the composer of a determinate musical work to the listener who witnesses the unfolding of a process. In this sense, the score is less a blueprint that mandates a preconstructed musical object and more a prompt that produces a series of contingent consequences in its realization.

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<sup>102</sup> “It is not always a matter of elaborated sonic epistemologies or highly charged “inner feelings,” far less flattening terms like sexuality, pleasure, or desire to which they are all sometimes reduced, but also of quieter resonances. Consider the overtones of Wagner’s music for some listeners; or the multi-layered clusters of associations, partly personal, partly shared, of a childhood carol, a particular recording, the opening of Beethoven’s 5<sup>th</sup> symphony. Amusement, happiness, intellectual satisfaction, excitement, disapproval – in specific contexts these too are part of people’s musical practice. It is not so much self-conscious internalized “feelings” – though in some cultural settings that is indeed one element – as the contextualized manner of people’s musical engagements: joyfully, fearfully, inattentively, reflectively, proudly; in a spirit of exaltation or energy or irritation; in sorrowful, celebratory, or nostalgic mood; with boredom (that too!), with dance, with tranquillity. Whether in deeply intense fashion or more light-touch action, music provides a human resource through which people can enact their lives with inextricably entwined feeling, thought and imagination”(Finnegan in Clayton, Herbert and Middleton 2002: 187).

It is just that in the case of some scores, e.g., the Beethoven Op.132, the instructions they contain seem to be deterministic (but, *pace* Beuger op. cit. impossibly so), whereas another score, e.g., Riley's *In C*, is less obviously so. The score of Cage's *4'33"* consists entirely of instructions presented in words. When the instructions themselves have become mutable, we have reached a state of "postconceptual transmediality," [which] marks 'the transition [beginning in the 1960s] from an ontology of mediums (painting, sculpture, architecture, photography, film, video) to a postconceptual ontology of art in general, and hence a fundamentally *transcategorical* practice" (Osborne 2013, quoted in Barrett 2016: 70), which is, Barrett says, "indicative of conceptual art's negation of the medium" (Barrett 2016: 70). As we have seen in the case of McLean, his use of code-based inputs can have two decidedly different outputs: firstly, the auditory experience of the Algorave environment and secondly the patterned fabric produced on the weaving loom. We might speculate on the nature of the outputs in a world of Barrett's "transcategorical practice".

Barrett asks where future critical music practices are to be situated, and wonders about what form of agency musicians and artists will be able to assert if they are required to move beyond current disciplines (ibid.: 166). Wherever these spaces are, and whatever the ~~medium~~ that is used, what will be common to critical music practices is an element of composition. Barrett says:

As a process of engaging bodies, times, and spaces, these artists rearticulate a music beyond sound that stands both in dialogue with and as a challenge to contemporary art and its institutions. [...] Despite the persistence of the art world and new music institutions, one should not hesitate to leave behind sound as an autonomous medium. Our real work, after sound *and* art, begins by composing radical collective formations of bodies, times, and spaces.

Ibid.: 167

But wherever these spaces are and whatever music becomes in terms of its material presence, it seems certain, according to Harper, that it must be composed (by what or

whom is not the issue) and have some recognisable structure. Otherwise, taken to its limit, as Harper points out, white noise (or, more accurately, white medium), or ultimate deracination is what would result. This process is where alien music takes us:

Alien styles may only repeat their specifics rarely across huge lengths of time or space, their rates of difference and information-change may be very rapid, but an alien style never ultimately spurns the cohering effect of repetition or it would have no affordable gravitational pull at all. [...] Alien music that constantly renews its alienness would never allow sufficient time for images of music to be afforded and so will merely be alienating. Rather than staying in place for us to scrutinise and familiarise ourselves with its logics, it would constantly wriggle away.

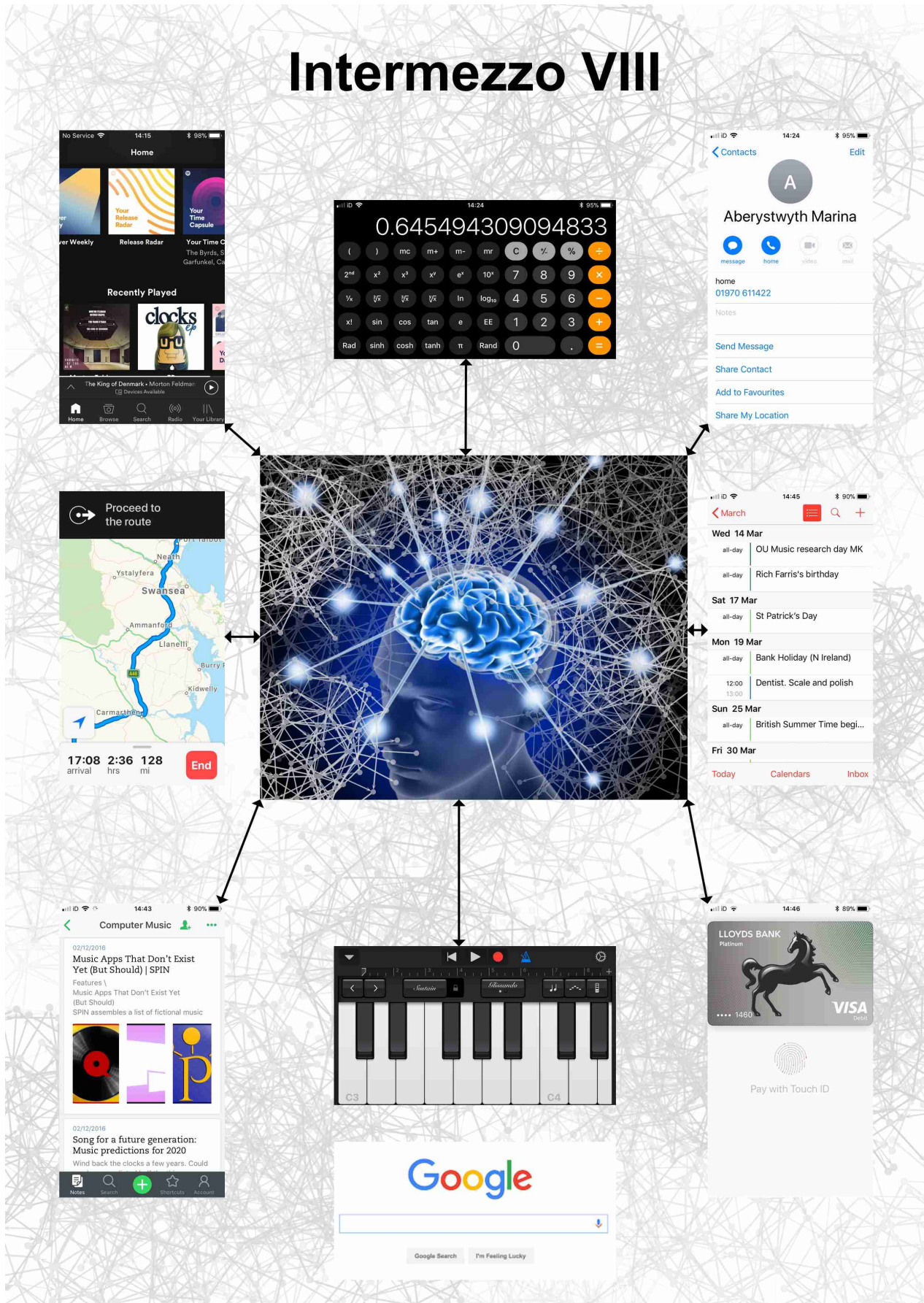
Harper 2010: 171

However, the dequantising of musics which Harper describes means that there is in fact an “infinite music space” (ibid.: 191). That infinite space is a (large) worldslice through the Deleuzian plane of immanence. It is a flat space where musics “can all be comparable and conceivably equal, seen on the same terms rather than through the traditional hierarchies” (ibid.). And, in support of Barrett’s assertions that music can be considered in a critical, post-sonic mode, Harper says that the dequantising of musics, “also implies that we could dequantise even further — that music is continuous with the everyday life from which it emerges and is then differentiated, continuous with anything we might have previously considered non-music or outside of music” (ibid.: 191-192). Because of this continuity and contiguity, Harper says, “Music in its entirety can be thought of as a single event that’s happening all the time, even in between what we normally think of as the separate musical performances we differentiate it into” (ibid.: 192).

With the use of the technologies which the vignettes’ participants describe, it is clear that they sit (along with the rest of us) at the “elbow” of the exponential expansion curve which Kurzweill describes (op cit.). They have all embraced the opportunities which the rapid expansion in technological means of music production and dissemination have provided in recent years. They, as producers, and the rest of us, as consumers, will certainly continue our processual aesthetic engagement with whatever musics (transcategorical or otherwise) emerge from the symbiotic, cyborgian future.



# Intermezzo VIII



For description see pp. 229-233





—————> and... and... and... you arrive here on a line of flight...

## **Aftermachine**

After what? After thinking, perhaps; or after writing. A conclusion, maybe; isn't that what appears at the end of a dissertation or thesis? This doctoral research journey has occupied a very large chunk of chronological time — and yet, and yet, it still feels to be in the middle of things, just as it did at the start.

Was there ever a question posed in the title of this dissertation-assemblage? I was always (already) ambivalent as to whether “Cyborg Music: A New Musicotechnographic Aesthetic” was asking a question or making a statement. It is in the nature of a rhizo enquiry that it may be either or both — *is* either and... and... and, both. To be fair, there was always the sub(title)text: Will current and future developments in music's interface with an exponential expansion of technology lead to a new musical aesthetic? To write down conclusions is anathema in the rhizome. And so I do not attempt to “answer” the question posed. A great deal has been said about that question throughout this dissertation-assemblage, and what has been said has been of the nature of a temporary stratification. Even temporary stratifications deterritorialise and move quickly on with time.

This dissertation-assemblage is a (fuzzy) frame within which those who encounter it, become sub-assemblages of it, by writing it, reading it, thinking about it, talking about it, become enmeshed with it, for varying lengths of time. But traditional thought is always snapping at our heels as we negotiate a nomadic escape in the rhizome. Traditional

thought lurks in the shadows, ready to trip and beguile the rhizo-nomad. To answer the subquestion above would be a traditional response. The Vignettes chapter/abstract machine provides some rhizo-vocality to the questionnaire participants, and a rhizo-description of what they had to say. So I leave it to my (the, any) readers to determine where they (always already) temporarily stand in assemblage with the question. There is no end-point to becoming. Nothing becomes. When I began I had no idea that a rhizo-enquiry as a dissertation was possible. As I remarked in the Methodology chapter/abstract machine, my original proposal looked very much like an outline sketch of a traditional empirical enquiry into a properly formulated research question. But immersion in the ways of rhizo-thinking (which always already lurks, ready to trip up the traditionalist) dissolved the apparent structure of the project plan. Examples of rhizo-theses are, indeed, thin on the ground. But where they do exist, as in, e.g., Sellers's 2009 rhizo-text, they provide a useful guide to the way in which a rhizo-enquiry might be de/re/structured for the purposes of a university submission. As Sellers says:

What matters in rhizo inquiry is what (e)merges from/with/in the rhizome of this thesis-assemblage, the illuminations, sometimes mere glimpses of what is happening in the shadows – like momentarily dappled pools of light shifting with the sun, wind blowing shifting shadows, light fading in and out, coming and going. Thoughts, ideas, thinking that can only be captured or seized upon momentarily because everything is always already becoming.

Sellers 2009: 230

The abstract machines in this ~~dissertation~~-assemblage are the warp and the weft of its ideas. As McLean's live coded weaving experiment shows (see the Futures chapter/abstract machine) the process of weaving reveals patterns that cannot always be visualised from an examination of the code itself. The word-assemblages of any text combine to make meta-patterns, and it is in this sense that we may say that the words speak for themselves. I hope that the words of the vignette subjects have spoken for themselves. Any layers of traditional (non-rhizomatic) thought that I have woven into/

around them<sup>103</sup> are just one worldslice through the material, as is this whole dissertation-assemblage. Other readers will (perforce) see other worldlices. There are always shadows in the rhizome, but as Sellers says, “Yet, looking for what might be in the shadows becomes some of a way into rhizome and becomes rhizome” (ibid.: 232). There is no privileged position of objectivity in the rhizome, only connections. “A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles” (Deleuze and Guattari 1987: 7). Honan puts the dilemma of writing the rhizome well:

Rhizomes do not have clearly identifiable beginnings and ends; a rhizo-textual analysis concentrates on the middle, rather than trying to follow the linear paths of more traditional linguistic analyses. It is impossible, then, in a rhizo-textual analysis, to provide a linear description of the journey taken through and across a rhizome. Each of the chapters of this thesis focuses on a different tuber, a different middle, while still providing tracings and linkages, connections to other tubers, other parts of the rhizome.

Honan 2001: 2

But if the position of the writer within a rhizoanalysis is not privileged, is it partial? Of course it is. By choosing and presenting texts (broadly construed) and making citations, by doing what Lemke calls “navigating ‘intertextual connections’” (Lemke 1995: 11), the author is engaged in “social and political acts” (ibid.: 10). The words become a commentary upon Deleuze and Guattari’s concepts of “the arts, sciences, and social struggles” (Deleuze and Guattari 1987: 7). And as Honan points out, Lemke’s intertextual connections do not consist only in the language of the text or the citations, but “all of the above: a complex interweaving of language, subjectivities, positions, all moving, changing, in a constant state of flux, at any one time” (Honan 2001: 40). But within these tidal movements and eddies, the fluctuations of selection and presentation continue, in a partial manner. The copious bibliographic references show some temporary anchor points in the sea of possible texts which actually crossed my path as a rhizo-researcher. What the text presented here does

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<sup>103</sup> Such as in the rhizoanalysis of the Vignettes material (see, esp. pp 162-188).

not reveal is what Honan calls “the [invisible] process of selecting and discarding work to be included” (ibid.).

At times in this ~~dissertation~~-assemblage I have piled metaphor upon metaphor, but I do not apologise for it. The whole of the rhizo-research has been metaphorically like a train journey. There are two descriptions of the ride. The traditional, linear journey is the **green** text, the rhizo-journey is the **green** text and... and... and the **purple** text.

Tomorrow I must take the train from London to Penzance. I well remember the first time I went to Cornwall. It was as part of a school geography field trip. We went to study the rock formations on the Lizard Peninsula and at Lands End. I can remember being on the bus going through Penzance. It was the summer term after the school production of *The Pirates of Penzance*, so naturally, some of us were singing the Policemen’s chorus, much to the annoyance of the others. I remember passing Penzance railway station and thinking about how long it was since the last regular steam service had called there. I had been on a steam-drawn service myself from Paddington to Devon, in, it must have been 1958. I can remember my dad walking me to the front of the platform to see the hissing and creaking locomotive in the evening light before we boarded. My tickets for this current trip have arrived in the post. The train is the 0900 from Paddington. Paddington, London’s gateway to the West. GWR, God’s Wonderful Railway. I arrive on the concourse of the station having come up from the underground system. I think to myself that my late mother’s letters home from Devon, where she was a wartime evacuee must have come through Paddington, up with the milk and the mail from the West Country. A letter from a girl to her mum, primroses and violets from a Devon hedgerow, wrapped in tissue paper. The diesel train leaves from Platform 2, on time. My mind conjures those long-lost smells of smoke and oil from nearly sixty years ago. Smoothly and almost silently we head west through the London suburbs, Park Royal, Acton. We slow as we draw into Reading, the home of the biscuit. And... and... and... The first view of the sea on this journey is where

the line leaves Exeter and hugs the coast, through Dawlish and on to Teignmouth. The beach is of red sand, once many summers ago, too hot to stand on in bare feet in the June sunshine. Totnes comes and goes, then Plymouth. We slowly creep over Brunel's old bridge, high above the Tamar and past St Germans. The old *Song of the Western Men* comes into my head; A good sword and a trusty hand / A merry heart and True / King James's men shall understand / What Cornish lads can do! Onward again, to Lostwithiel. I bring to mind that the Duchy of Cornwall owns a large forestry area here. St Austell comes and goes. My mind wanders back to July 1974, on a train from here heading back to London, reading the news in *The Guardian* about the Turkish invasion of Cyprus. I remember being anchored overnight just down the road from here in our sailing boat, in the harbour at Fowey, being kept awake half the night by the clattering of the china clay trucks being shunted around in the yard. After Hayle, the train runs by the sea again, past the rocky outcrop that is St. Michael's Mount. We arrive in Penzance at 1730. An uneventful trip from Paddington.

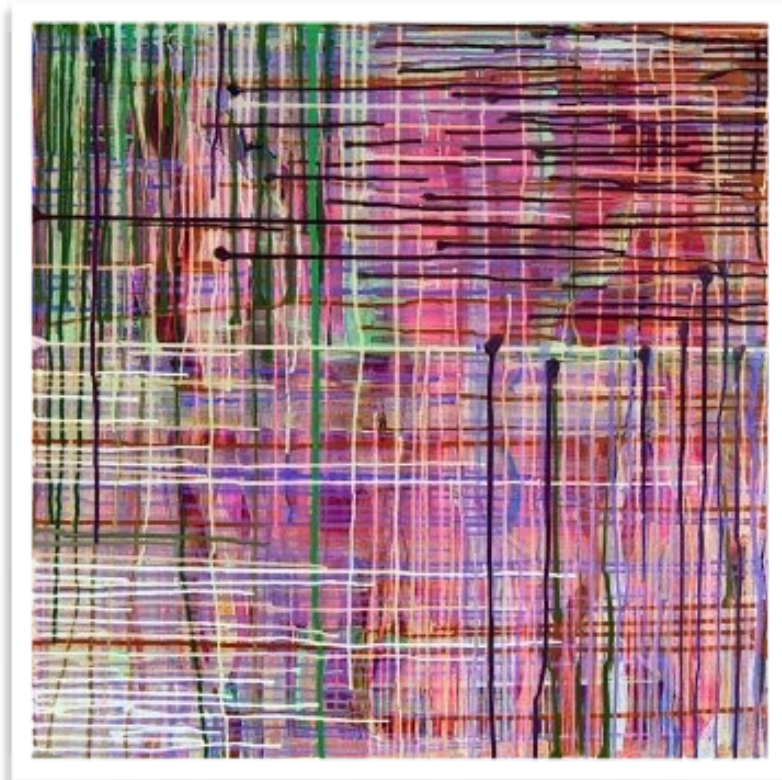


Fig. 31 *Pink Plank* by Tom Tomos. Original acrylic on canvas, 100 cm x 100 cm



The fractality of memories, and of associations, of diachronic selectivity, and of unavoidable entanglements — these are rhizome. The purple and the green are the warp and weft of my worldslice.

Yours will have differ(ing)ent colours and patterns. But always already, in the rhizome there are common threads, common colours, common patterns.



**Fig. 32 *Tod und Verklärung* by Tom Tomos.  
Original acrylic on canvas, 75 cm x 75 cm**

I look back at and (a)round the abstract machines that I have included in this dissertation-assemblage. With the benefit of hindsight, some of their warps and wefts, their entanglements, and their patterns have become clearer than at their beginnings. That is the advantage of hindsight — always in the middle of things.

In the *Foremachine* abstract machine I introduced the rhizome of my own involvement/ assemblage of recorded music and my own musicking life; a rhizome which stretches diachronically back to my childhood. I introduced the Deleuzian concept of rhizome as a

metaphorical epistemological space ~~inside~~ which everything that can happen does happen. I mentioned the writing collective JKSB who point out that all writing in the rhizome is a collaborative act, the action of writing putting a ~~particular~~ author at the focus of innumerable axes of (inter)relationships. Those relationships have to bear the burden of carrying past experiences. No writing can happen *ex nihilo*, always already it is complex and ambiguous. I stated that the incorporation of historical baggage might as well be acknowledged as integral to the writing/research process. Whether that acknowledgement is something that subsequent readers are aware of depends on the particular construction of their individual worldslices through the rhizome. Perhaps the most important matter raised in the *Foremachine* chapter/abstract machine was the concept of the ~~dissertation-~~assemblage as rhizome — with no beginning or end, and wherein chronological progression is, for the most part, meaningless. Looking ~~back~~ now, from a chronological time ~~near~~ to submitting this ~~dissertation-~~assemblage, to the ~~beginning~~ of the formal part of this research project (i.e., the time when the research proposal was submitted to the university and the funding body), it is clear that my involvement in a Deleuzian way of thinking about the world has progressed from an abstract intellectual idea to a framework which now colours my entire worldview. A further concept which was introduced was that of words being *sous rature*, indicated by the text being struck through ~~in this fashion~~, but left legibly in place. It has become a very useful part of my armoury as a writer, where the struck through word or phrase is the *mot-juste*, albeit inadequate. It points out the limits of language and thought and should encourage (incite) the reader to question the word or thought by setting off on further lines of flight. I pointed out that the whole rhizomatic research process has resisted what Sellers calls “concretising” (Sellers 2009: 2). The research, reading, thinking, and writing was and is, to paraphrase Simon, slip-slidin’ away.<sup>104</sup>

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<sup>104</sup> Paul Simon (1977) song: Slip Slidin’ Away

In the *Literature Review* ~~chapter~~/abstract machine I give a very broad summary of the two main traditions in western philosophical thought; the analytic and the continental. I mentioned that two particular examples, one from each of these two traditions, formed the conflicted assemblage which underpinned my ~~initial~~ thinking about the subject matter of this ~~dissertation~~-assemblage. Those two seminal volumes are Scruton's (1997) *The Aesthetics of Music*, and Small's (1998) *Musicking*. In an area of investigatory research as broadly constructed as an inquiry into music(king)'s aesthetics, it would be the work of several lifetimes to survey the ~~relevant~~ extant literature, which is why the brief summary of the diametrically opposed approaches of Scruton and Small stands as proxy in place of such a survey. It becomes clear from the other ~~chapters~~/abstract machines which side of the divide in that debate that I think best explains the aesthetic of music(king) as part of the social realm of human behaviour: and that is firmly on Small's side of the argument. Certainly ~~the~~ literature has been reviewed. But in a case such as ~~this~~, a rhizoanalysis, the review manifests itself throughout the text, sometimes explicitly, and sometimes implicitly. The rhizo-bibliography stands for the literature review.

In the *Methodology* abstract machine I give a rhizo-justification for the approach taken throughout the research project. This has not been a linear, empirical study. It has been ascientific. As I pointed out, the vignettes' participants do not represent a wide social or gender variable set. Certainly, since the time of the start of this research project, more women have become involved in the live-coding environment, not least because of the active encouragement of McLean. He takes a proactive stance towards encouraging a balanced gender presence in both performances in which he is involved and also in the presentation of academic work at conferences.<sup>105</sup> My justification, if it can be called such, is that having established contact with the participants, I was keen to progress the research because of pressure of time. On the subject of gender imbalances, the following facts

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<sup>105</sup> Examples of this can be found on his Facebook page at <https://www.facebook.com/yaxupaxo>



about my bibliographic references are noteworthy. The total number of substantive authors appearing in the bibliography numbers 481. Where I have been able to determine the gender of those authors, 49 are female, so approximately 10 percent. I cannot think of any intrinsic biases in my methods of selecting those texts (although there may be some). They were mainly discovered through internet searches or by following bibliographic leads from other texts. Without resorting to a statistical analysis beyond my ken, it is perhaps reasonable to speculate that, if the 10 percent of female bibliographic representation is typical, then it is not surprising that with a sample size of only four, no females are represented amongst my vignettes' participants.

I realised quite quickly that the apparently discrete tasks that were written into the original project plan were, in fact, not so discrete. The rhizomatic way of proceeding involves tasks with fuzzy borders, tasks which deterritorialise all the time. Always there has been indeterminacy, de- and reterritorialisation in the way the research has gone on and interrelated, intertwined, intermeshed. The structure of the dissertation-assemblage has also transformed over time. Intermediate readings of drafts showed that it was necessary to consolidate two chapters/abstract machines into one. These were the chapters/abstract machines, *Boundaries*, and the other, *Entangled Network Space*. In the rhizome, the boundaries of reified things, and the entanglements between them clearly warrant discussion together. It had initially been in my mind that the consideration of the aesthetics of cyborg music would emerge as a general superject of the entire dissertation-assemblage. But, again, reading of earlier drafts seemed not to be achieving this, so the chapter/abstract machine *Rhizo-aesthetics* stratified from deterritorialised writing. I have said elsewhere, and I reiterate here, these chapters/abstract machines are my own worldslice through the rhizome, and other readers will bring different rhizo-aspects to bear on the written material that appears here. The deterritorialisation of the original project plan meant that the rhizo-research, the conjunctive process of becoming-research was

allowed to develop; a methodology which encourages process over product. Just as aspects of the rhizo-aesthetics, boundaries and entanglements self-reveal within the other chapters/abstract machines, so too with methodology. The becoming-research, the process of rhizo-enquiry, *is* the methodology, rhizo-enquiry is always already meta-. As Sellers says, “The writing of the research becomes part of the inquiry in that there is no difference between what the thesis-assemblage talks about and how it is made” (Sellers 2009: 201). Looking back now at the genesis of this becoming-research over the last (x... 50... 10... 7...) five years, it is clear that the process of thinking-working-becoming-rhizome has always already been in a state of flux. As a meta-justification, a methodology, rhizome is doing, the verb is to rhizome. To present data, even as simple text, is to map it. Sometimes the maps just speak for themselves, “any attempt at ‘wording’ it confound[s] the communication” (Sellers 2009: 206-207).

In the *Rhizo-aesthetics* abstract machine I explicitly tackled what had been seeping and leaching out of the other chapters/abstract machines, that is, a discussion of the way aesthetics manifest in the rhizome. The whole of this research project and dissertation-assemblage has been tied to/predicated on the statement/question that cyborg music involves a *new* aesthetic. I briefly surveyed the field of aesthetics which had developed in western European thought post-Enlightenment. My reading of analytic writers on aesthetics has always been troubling in a consideration of the rhizome and rhizo-movements. That view of aesthetics requires a commitment to a greater degree of reification and predication of reified objects than a rhizo-view can allow. The indication of objects being sous rature is an entry-point into a rhizomatic consideration of aesthetics. In the rhizome, binary, bipolar distinctions are rare, and where they exist, they do not last for very long, everything always dis-integrating to a state of “many truths” (Sutton and Martin-Jones 2008: 4-5). I elaborated a discussion of aesthetics as first philosophy, an epistemological, speculative metaphysics, nearer in substance to the ancient roots of the

Greek *αἰσθητικός* — that which relates to sense perception. This view finds concordance in the work of Whitehead who uses the term “prehension” to describe the feeling-sense which occurs in the process of the encounter between entities, a process which itself constitutes the entities. In short, a processual ontology which structures the whole world. This Whiteheadian view finds strong echoes in the work of, *inter alia*, Deleuze (especially with Guattari), Shavero, and Vitale. It is in the flux and movement of the rhizomatic processes of de- and reterritorialisation that the dis-(and)integration of the aesthetic encounter allows things to emerge as superjects — the products of encounter. Vitale’s networkological project situates Whitehead’s entities (*res verae* — real, or true things) in a multiverse of intertwined, interconnected, fractal, and holographic nodes and connections. These networks and sub-networks are what DeLanda calls (after Deleuze) “assemblages”. Some assemblages may be chronologically long-lived, whilst others are evanescent and quickly transient. But all ultimately succumb to time’s passing. This way of setting out the nature of the aesthetic encounter underpins the discussion in the other chapters/abstract machine of this dissertation-assemblage. The de- and reterritorialisations which constantly occur in the Whiteheadian encounter(s) are fundamental to the nature of boundaries<sup>106</sup> (between) and entanglements amongst the temporary manifestations of *res verae* such as cyborgs and musicking assemblages. I explore the value of diagrams in metaphorically depicting Vitale’s Whiteheadian encounters with(in) assemblages, notwithstanding the (de)limitations of being restricted to static depictions in two dimensions. But even a flat picture can paint a thousand words.

It is, perhaps, in the sense of the ever-changing nature of a processual aesthetic that every aesthetic encounter is made anew. And that new aesthetic plays out in a cyborgian sense in the processual encounters which occur in the ever-increasing complexity of the

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<sup>106</sup> As I pointed out in the Vignettes chapter/abstract machine, a boundary does not necessarily imply a barrier.

musicking world, the world of exponential technological growth (Kurzweill) and epochal redoubling (Stiegler).

In the *Entangled Network Space* abstract machine I built upon the discussion of ontology introduced in the Rhizo-aesthetics chapter/abstract machine. I canvassed the work of Vitale's (2014) description of a world composed of networks of networks. Coupling discussion of these networks with DeLanda's (2012 and 2016) theory of assemblages, I reviewed the nature of reified things in rhizo-space. Implicit in Whitehead's ontology of reification through the processes of prehension, there can be literally no-thing without entanglement. I canvassed Hodder's (2012 and 2014) views on the nature of such entanglements, especially in relation to those entanglements between humans and things. I also considered the problem of identifying boundaries between things and persons, particularly when considered in the light of the Extended Mind Hypothesis (Clark and Chalmers in Menary, ed., 2010).

In the *Cyborgs* abstract machine I examined the assemblage between the biologically constrained human being and technics, which constitutes the cyborg; both as individuals and, at a meta-level, as a species. I outlined the Extended Mind Hypothesis, especially as promulgated by Clark and Chalmers. Clark (2003) claims that as humans we are all natural-born cyborgs in virtue of our interdependencies with technology. We are, he says, "human-technology symbionts" (ibid.: 3). And this is a view of humanity which is shared by Stiegler who says, "the invention of the human is technics" (Stiegler 1994: 148; quoted in James 2012a: 62). In rhizo terms, I made an assemblage connection between Stiegler's espousal of a Global Mnemotechnical System implying that technology's involvement with our present also carries traces of past events and Hodder's thesis in *Entangled: An Archaeology of the Relationships between Humans and Things* (2012). Confirming Hodder's entanglement hypothesis, James (2012a) outlines Stiegler's concept of epiphylogenesis. I made a further rhizo connection with Stiegler's description of human/

technology symbiosis as a fundamentally aesthetic encounter being congruent with Whitehead's description of aesthetics as first philosophy. Deleuze and Guattari make a similar point, "tools exist only in relation to the interminglings they make possible or that make them possible" (Deleuze and Guattari 1987: 99-100). Tomlinson calls this a biocultural coevolution (Tomlinson 2015: 13). It is this "human prostheticity" (Frabetti 2015: 25), which allows James to say:

The impersonal memory conserved in our surrounding technical environment constitutes us, at a fundamental level, as temporal beings who are aware of a past, experience a present and anticipate a future.

James 2012a: 66

Such a future contemplation being what some of the writers I cite in the Futures chapter/abstract machine undertake in virtue of this Stieglerian grounding as temporal beings. Tomlinson describes the emergence of music as being "always technological [...]" and this *technosociality* formed the matrix in which musicking took shape" (Tomlinson 2015: 48). This is more evidence of music(king) being comprised in fractally connected assemblages. And, for added emphasis, Tomlinson conflates into his description of the music(king) assemblage the added ingredients of language and the metaphysical imaginary. All three are, he says, "characteristic, even definitive gestures of human modernity, and none of them could have taken their modern forms without the simultaneous formation of the others" (ibid.: 50). So, to modify Clark's terminology, in the light of Tomlinson, we may say that we are technosocial musicking linguistic imagining cyborgs. I gave three examples from the vignettes participants where their actions demonstrate a de- and reterritorialisation of the human-technology symbiont.

In the *Vignettes* abstract machine I present the results of gathering the project's research data. The data consist, mostly, in the words that the four vignettes participants sent me in response to a broadly-focused questionnaire about their respective music(king)

activities and work.<sup>107</sup> Other material, for example, selections from websites and other online material is juxtaposed with the source data, the totality of which constitutes the corpus for rhizoanalysis. The data are reflexive within the rhizome. Different readings of them de- and reterritorialise, sometimes asking their own questions. The data, when looked at rhizoanalytically, show common threads as between each of the participants, in relation to their respective modes and methods of music(king). Insofar as these data are limitedly-empirical, they do show that the rhizoanalysis of the other chapters/abstract machines, especially in relation to cyborgs, and boundaries and entanglements, has some basis in the actuality of what the vignettes participants actually say about their music(king). It may be/have been otherwise, and other readers' worldslices may see it otherwise. My "scrupulous plausible misreading" (Spivak 1996: 45 quoted in Honan 2001: 35), is not necessarily yours. Once again, I draw attention to the tensions which are set up in the compromise position which is consequent upon the stratifying rhizoanalysis being juxtaposed with the raw data. But these tensions are just another facet of the multidimensional intensities which a rhizoanalysis sets up. As Sellers says, "It was not necessary to add more and more data to elaborate understandings, rather it was about generating (a) milieu(s) of mo(ve)ments from/with/in/of liminal spaces towards thresholds of understandings" (Sellers 2009: 214). The second part of the Vignettes chapter/abstract machine (pp 162-188) by way of giving voice to the questionnaire participants, is a rhizo-vocal rhizo-analysis of what they say. This is but one (mis)reading of the corpus of the ethnographic research material.

In the *Future(s) un poco accelerando* abstract machine I pointed out that very few writers ever commit to publishing speculations about future human technosocial

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<sup>107</sup> In the pre-data-gathering phase of the research project I undertook an online training course with the University of Michigan in questionnaire design. At that time I had envisaged a more traditional academic approach to the ethnographic work with the data "subjects," an approach which would have required a far more objective (and methodologically justifiable) approach to data-gathering by the medium of a questionnaire. As my immersion in rhizo-thinking developed, I decided that a far more open (and participatory) relationship with my participants would lead to more open data-collection and that the approach was justifiable (albeit properly, ethically constrained and authorised) within a rhizo-research methodology.

developments, since, presumably, such work would be a hostage to fortune. But I do cite some such writers, and give some prominence to those (particularly Kusek and Leonhard) who have a good track record in the accuracy of their predictions. Such is the pace of technological advancement that even during the time that I have been undertaking and writing this research project, many platforms for producing and disseminating music(king) content have emerged. These platforms often put the individual musicker at the centre of an assemblage which increasingly sees the sidelining of the old hegemonies of commercial music production. There has been a marked shift of the musicking power-base away from the commercial arms of the recording and manufacture of physical means of music ownership in favour of the small-scale and internet-based communities of musickers. McLean's (*inter alia*) development of TOPLAP, the programming application Tidal, and the Algorave community, and also his *Spicule* album's interactive compositional process, would be paradigm examples of this phenomenon. It is a phenomenon of dequantisation, where, according to Harper, musics "can all be comparable and conceivably equal, seen on the same terms rather than through the traditional hierarchies" (Harper 2010: 191). I considered what effect the exponential growth (*pace* Bostrom and Kurzweil) might have on the musico-technological cyborgian symbiont with a consideration of the future speculations of Eisenberg. Finally, I canvassed the writings on whether, perhaps, music might not be dependent on a sonic phenomenology at all.

In this *Aftermachine* abstract machine I express my realisation that even after this lengthy research journey, I am always already at the start of it. Which is to say, in the middle of it.

In the *Intermezzi* abstract sub-machines, diagrams illustrate a particular point(s) from the discussion in the main body of the text. The very short chapter/abstract machine gives a textual overview of the pictures.

In the *Bibliography* abstract machine I provide a conventional, alphabetical and linear record of material cited in this dissertation-assemblage, together with a sub-section dealing with bibliographic references to the vignettes' participants and their work. But by far, the majority of bibliographic references relate to literature and other work which is not directly cited in the text. These materials are the heart/middle/*milieu* of this rhizome. They are points of involution, where ideas coalesce and stratify. But they are also points of departure, launch pads for further lines of flight and new deterritorialisations

As a long-time student with the Open University, I am overly-familiar with the concept of the "cut-off date." They are the bane of students' lives, being the absolutely latest date at which assignments can be submitted for marking in order to gain credit for a piece of work. And even though this PhD research journey has been a little more chrono-flexible, it still must come to an end. But, as Honan says:

In a rhizome there is no arrival gate, no point where one can say, 'it is finished,' 'I have arrived'. At this moment then, my journey through the rhizome becomes an interior one, not signified by the appearance of text on the computer screen. My thoughts continue tracing and mapping the whorls and lines within the rhizome, but the brain pulses that carry such thoughts to my fingers on the keyboard now cease.

Honan 2001: 259

... But, and... and... and... more thoughts. There are more things to include. I want to trace some more mappings in the rhizome. You have seen them already, the short *intermezzi* between the chapters/abstract machines. But this is where they sprang to mind, here and now. Your reading of this dissertation-assemblage, your role as a sub-assemblage of it, has had a chronology of your making. As I said in the Foremachine abstract machine, this dissertation-assemblage might be read in any order, and there is a sense that this is an entirely appropriate way to read a rhizome, because it was certainly composed in any order. Like the *intermezzi* just mentioned, there are sub-assemblages of the text that you have read which are not yet built at the time of writing these words. In the rhizome, notions of here and there, now and then dissolve:



Where are you going? Where are you coming from? What are you heading for? These are totally useless questions. Making a clean slate, starting or beginning again from ground zero, seeking a beginning or a foundation—all imply a false conception of voyage and movement (a conception that is methodical, pedagogical, initiatory, symbolic...).

Deleuze and Guattari 1987: 25

This has been a speculative aesthetics, which has implied its own ontology; a flat ontology borrowing its concepts from Whitehead, Deleuze and Guattari, and Vitale. It is a way to describe how:

[t]o move between things, establish a logic of the AND, overthrow ontology, do away with foundations, nullify endings and beginnings. They know how to practice pragmatics. The middle is by no means an average; on the contrary, it is where things pick up speed. *Between* things does not designate a localizable relation going from one thing to the other and back again, but a perpendicular direction, a transversal movement that sweeps one *and* the other away, a stream without beginning or end that undermines its banks and picks up speed in the middle.

Ibid.

I was interested in how writers ~~end~~ their texts. Even Deleuze and Guattari, whose *A Thousand Plateaus* (1987), the paradigmatic rhizo-text, ~~conclude~~ it after 500-plus pages by saying:

We can no longer place the assemblages on a quantitative scale measuring how close or far they are from the plane of consistency. There are different types of abstract machines that overlap in their operations and qualify the assemblages: *abstract machines of consistency*, singular and mutant, with multiplied connections; *abstract machines of stratification* that surround the plane of consistency with another plane; and *axiomatic or overcoding* and *abstract machines* that perform totalizations, homogenizations, conjunctions of closure. Every abstract machine is linked to other abstract machines, not only because they are inseparably political, economic, scientific, artistic, ecological, cosmic—perceptive, affective, active, thinking, physical, and semiotic—but because their various types are as intertwined as their operations are convergent. *Mechanosphere*.<sup>108</sup>

Ibid.: 514

There is an implication here that the lines of flight continue beyond the covers of the book; that the text of the volume is *in media res*. Other texts, by writers who would not be considered as Deleuzian in any way, also invite the reader to consider the issues discussed as extending beyond the there and then and the confines of the particular text.

This is Crowther, “Art, then, is of continuing normative significance. It may even be on the verge of radical and dynamic new transformations” (Crowther 2007: 245). Often a

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<sup>108</sup> I replicate the original text which is justified to the right margin in the original.

question is posed that hints of further enquiry, further lines of flight ~~out into~~ the rhizome.

These are DeLanda's (2016) closing words:

If the actual components of an assemblage, as well as its actual emergent properties, show that the assemblage is a solution to a physical, chemical, biological, or social problem, its virtual dispositions reveal what is problematic about it, the objectivity of what we do not know about it: What tendencies would be manifested in novel conditions? What capacities to affect and be affected would be exercised when interacting with other assemblages that it has never interacted with?

DeLanda 2016 185-186

Roden, who does deal in Deleuzian assemblages, principally through DeLanda, says:

Perhaps Stelarc defines the problem of a post-anthropocentric posthuman politics best when describing the role of technical expertise in his art works: "This is not about utopian blueprints for perfect bodies but rather speculations on operational systems with alternate functions and forms" (in Smith 2005: 228-9). I think this spirit of speculative engineering best exemplifies an ethical posthuman becoming — not the comic or dreadful arrest in the face of something that cannot be grasped.

Roden 2015: 192

Harper ends up with these words:

If music is infinite, then its composers are infinite and potentially infinite in number. No restrictive idea (image) about music-making should tell us otherwise. Music can be as personal, as collective and as potentially free as any of the other activities of human life from which it's ultimately indistinguishable. No matter how far from Earth it travels, music can become just as much a part of our everyday — yet perhaps otherworldly — human lives and achievements.

Harper 2010: 195

Another forward-facing quote, to emphasise this point, comes from Barrett:

Despite the persistence of the art world and new music institutions, one should not hesitate to leave behind sound as an autonomous medium. Our real work, after sound *and* art, begins by composing radical collective formations of bodies, times, and spaces.

Barrett 2016: 167

For me, Hodder best sums up the nature of a rhizo-text:

But in the end perhaps the main attraction of entanglement, ironically its main neatness, is its messiness. Entanglement is about being caught up in real things in specific conjunctural ways that come about through complex interactions. It is not bounded, schematic, theoretical. It describes the ways in which we live our lives struggling between webs of demand and potential, making do, working it out, unclear what is happening much of the time, not knowing the results of our actions or why. We can never mop up all this mess.

It is always difficult to end a book. The book has a beginning and an end and one wants to tie up all the loose ends before finishing. But the loose ends can never be neatly tied up — if they could it would be possible for there to be an end to entanglement. But humans cannot exist without things. And things, or at least this is my argument, cannot be wholly subjectified into humans. So the loose ends cannot be tied up and entanglement continues, well beyond the neat bounds of this book.

Hodder 2012: 222

One of the greatest privileges of the time I have had during this research project has been delving into the bibliographic lines of flight which are afforded by access to the literature and the signposts that the internet provides. The researcher soon realises that good bibliographies are the best maps that there are to journey with(in the) rhizome. Other writers have often surveyed the ground before, even if not from precisely the same temporarily stratified vantage point. What Hodder describes as “loose ends” the rhizo-researcher describes as escape routes, potential lines of flight, wormholes through worldtwists, opening up new fractal landscapes and affording new views of previously visited landscapes, but from vantage points which are always in the middle of things.



—> and... and... and... you arrive here on a line of flight...

## Intermezzi I - VIII

I include the intermezzi assemblages ~~between~~ the other chapters/abstract machines to show that there are middles between middles. Everything always *in media res*.

### *Intermezzo I*

In this assemblage I show the lines of flight between Small's *Musicking* (1998) and seven other works which appear in the bibliography of this ~~dissertation~~-assemblage. The entanglement between the seven and Small is that each of them cites and/or references Small in its bibliography. There are other works in my bibliography which also cite and/or mention Small, they are mainly journal articles. I include this assemblage to emphasise the point which I make elsewhere concerning the richness of bibliographies in seeding lines of flight, by acting as stepping-off points for journeys in the rhizome. The linkages back to the cited source are like Theseus's use of Ariadne's thread in the labyrinth, whose complexities are another metaphor for the rhizome. And if enough of Ariadne's threads cross paths in the labyrinth, the warp and weft of an entangled, woven web appears. The bibliographic references are waymarkers in the vast world of Borges's otherwise undifferentiated library. Certainly, this assemblage represents a particular stratum, but a stratum which is always already deterritorialising with respect to the rhizome. Of course, the lines of flight are chrono-dependent; the seven volumes all post-date Small. To find a bibliographic reference which pre-dates a publication would be an interesting find. Interestingly, another

volume which I cite, Tomlinson's *A Million Years of Music: The Emergence of Human Modernity* (2015) has 47 indexical references to the term "musicking" (ibid.: 358) but does not mention or cite Small at all.

### *Intermezzo II*

This assemblage identifies (and questions) a line of flight with a long chronology. The bone flutes are about nine thousand years old, whilst the algorave musicians are clearly contemporary. The question mark inserted in the line of flight stands to represent the question which Tomlinson raises about whether or not there is a continuous and unbroken line of descent from ancient human cultures who used the bone instruments pictured down to the present time and all of the manifestations of music(king) which take place in contemporary cultures. Tomlinson describes the possibility of "epicyclic formations" (Tomlinson 2015: 249), which involves (musicking and musical instruments) being periodically (epicyclically) subject to "invention, occurring outside any continuous cultural tradition" (ibid.: 249).

### *Intermezzo III*

This assemblage shows the vignettes subject McLean (performing as Yaxu at an algorave). The top image represents binary computer code, the bottom left image, a laptop computer, and the bottom right is a still image from a live YouTube broadcast made by McLean. The purpose of this assemblage is to demonstrate the technical dependencies which coalesce in McLean's musicking. The production of live-coded music was not possible before the emergence of these code-based, computer-based technologies. McLean emphasises the importance of broadcast mediums of platforms such as YouTube in disseminating his music to a wide audience (see the McLean section of the Vignettes chapter/abstract machine). This assemblage is but one fractal level of McLean's musicking rhizome. As in all of these intermezzi images, the faint background nodal connections are there to hint at the different fractal levels contained in the worldslice depicted.

#### *Intermezzo IV*

At the centre of this pictorial assemblage is the vignette subject Broadhurst. The surrounding images are things which he describes as using in various percussive compositions. They are, clockwise from the top left, a heating boiler, the metallic bannisters in a stairwell, a djembe drum, clapping hands, drumsticks, a canal towpath in a tunnel, a dripping tap, and a church bell. In his description of his methods of sound production and recording (see Broadhurst section of the *Vignettes chapter/abstract machine*) he provides his own rationale for categorising and grouping his works under a discrete musico-genealogy. As this pictorial assemblage shows, other worldslices through Broadhurst's musical rhizome may also be made.

#### *Intermezzo V*

This assemblage shows the vignette subject Whiteside. The other images are music manuscript paper with a pencil (top), a ProTools interface on a computer screen (bottom left) and a piece of musical notation produced with the application Sibelius (bottom right). As he describes in the *Vignettes chapter/abstract machine*, which of these technologies he utilises depends upon which stage of the compositional process he is at. The pencil and paper provides maximum flexibility in terms of freedom of composition because it allows ideas to be developed and captured more quickly and flexibly than is the case with the computer-based ProTools and Sibelius programs. Each of these technical solutions has its place in Whiteside's compositional rhizome, but each has its own benefits and constraints.

#### *Intermezzo VI*

At the centre of this pictorial assemblage is the vignette subject Trandafilovski. He is surrounded by (clockwise from the top left) Baruch Spinoza, Italo Calvino, Joseph Campbell, and Jorge Luis Borges. In the *Vignettes chapter/abstract machine*, Trandafilovski describes how the writing of these four individuals has been influential upon

his musical compositions. He situates these influences within an overall cultural context. He says, “I would say that the overall socio-cultural context in which we live permeates what we do, and in this respect, apart from specific influences, my musical activities are in many ways a product of the present” (T1). These broad literary and philosophical influences which Trandafilovski cites are at a similar level of fractality to the bibliographic links which I mention in Intermezzo I. Once again, the nodal background to the image may represent the deeper fractal levels which could be identified by further elaboration and questioning about the deeper aspects of these influence(r)s.

### *Intermezzo VII*

At the centre of this pictorial assemblage is the cover of Cage’s book *Silence* (1978). I include it here to stand as a representation of the notion of silence being able to be a component part of music(king) which is discussed further in the Futures chapter/abstract machine. Cage’s book is surrounded by (clockwise from top left) Barrett’s *After Sound* (2016), A recording of Beethoven’s ninth symphony, Hegarty’s *Rumour and Radiation: Sound in Video Art* (2015), and a still from a film/installation by Boudry and Lorenz, *Silent* (2016). The Futures chapter/abstract machine discusses the notion of silence as part of music(king) in more detail.

### *Intermezzo VIII*

This pictorial assemblage relates to the chapter/abstract machine on boundaries and entanglements. It is germane to the discussion of the Extended Mind Hypothesis and depicts aspects of cognition which are nowadays offloaded from the brain to storage and computational devices in the environment beyond the physical locus of our brains. The central image is a schematic depiction of the human brain’s intracranial locus, with the nodal network surroundings implying that the brain is just a part of a wider fractal rhizome. The other images, linked by arrows, are (from top left, clockwise); a screenshot from the Spotify music streaming app, a scientific calculator app, a “contacts” app from a mobile

phone, a calendar app, an electronic “wallet” app which stores details of bank accounts for contactless electronic payments, linked to a bank account, a screenshot from the GarageBand music composition app, a screenshot of the Evernote data storage and indexing app, and a screenshot of an online phone satellite navigation app. The final (bottom) image is of a Google search box, which is most people’s portal to the greatest extra-cranial data manipulation and storage repository that has existed throughout human history, the internet and the world wide web.



## Appendix A



The Open University

From Dr Louise Westmarland  
Chair, The Open University Human Research Ethics Committee

Email Louise.westmarland@open.ac.uk  
Extension 52462

To Thomas Hewitt, Music Dept

Subject Cyborg Music: A Future Musicotechnographic Aesthetic

### Memorandum

HREC Ref 2015/Hewitt/2118/1  
AMS ref  
Submitted 09/10/2015  
Date 23/10/2015

This memorandum is to confirm that the research protocol for the above-named research project, as submitted for ethics review, has been given a **favourable opinion** by the Open University Human Research Ethics Committee. Please note that the OU research ethics review procedures are fully compliant with the majority of grant awarding bodies and their Frameworks for Research Ethics.

Please make sure that any question(s) relating to your application and approval are sent to [Research-REC-Review@open.ac.uk](mailto:Research-REC-Review@open.ac.uk) quoting the HREC reference number above. We will endeavour to respond as quickly as possible so that your research is not delayed in any way.

At the conclusion of your project, by the date that you stated in your application, the Committee would like to receive a summary report on the progress of this project, any ethical issues that have arisen and how they have been dealt with.

Kind Regards,

Dr Louise Westmarland

The Open University is incorporated by Royal Charter (number RC 000391), an exempt charity in England & Wales and a charity registered in Scotland (number SC 038302)

HREC\_2015-template-favourable-opinion



### Research Project Information

You are being asked to participate in a PhD research project being undertaken by Tom Hewitt, a student with the Open University. The project is called *Cyborg Music: A Future Musicotechnographic Aesthetic*. The broad aim of the project is to examine the effects that current and future technological developments are having on the aesthetics of music. You have been asked to participate in order to gain your views and opinions about how technology has an impact on your own current and future music-making practices.

You will be interviewed so that you can respond to questions about your use of technology in your music-making. The interview(s) may be made by email correspondence or by face-to-face interviewing with the researcher. The interviews will not take more than two to three hours in total, and perhaps less.

Any data (in the form of your answers to interview questions) will be held securely and in accordance with the Data Protection Act and the Freedom of Information Act. Because of the unique nature of your music-making, it might be that your answers will lead to your identity becoming apparent in any published results. You will be asked separately whether you give your consent to your data being used in this way in a published thesis.

You may, of course, withdraw from this research project at any time with no adverse consequences or criticism whatsoever.

You may ask to have any of the data which you supply destroyed at any time up to the submission of the research thesis. This is anticipated to be July 2017. After that time the data will be in the public domain.

The principal investigator is: Tom Hewitt ([thomas.hewitt@open.ac.uk](mailto:thomas.hewitt@open.ac.uk)). Tom's supervisor is: Dr Robert Samuels ([robert.samuels@open.ac.uk](mailto:robert.samuels@open.ac.uk)). You may contact either of them at any time if you have a query about the research and your involvement in it.

A summary of the findings of the data provided by you will be made available to you prior to the final writing-up of the thesis and an electronic copy of the thesis will be sent to you for your information if you require it.

Many thanks for your participation in this research project. Your contribution will be important in developing a view on the aesthetics of modern music-making in the technological age.

**Tom Hewitt**

## Appendix C

The four participants in this research project were asked to respond to this questionnaire (see p.129 *et seq.* of the main thesis):

- *Musical background*

Explain how you came to be a musician/composer. Give details of your musical 'history'. Outline your playing, performing, composing, recording activities.

- *Musical influences*

What influences have had an effect upon the ways in which you make music and the actual music you produce?

- *Technology*

Considering technology in its very broadest senses, please outline how technology constrains and enables your music.

- *Aesthetics*

Please say what you consider to be the important aesthetic aspects of your music. How do you decide what they are to be and how do you achieve them?

Julian Broadhurst responded to the questionnaire with four lengthy documents in the form of a dialogue. Their length precludes them from being reproduced *in toto* in the main body of the ~~dissertation~~-assemblage, but they are reproduced in full in this appendix for reference purposes. The material is unedited, just as sent to me by Broadhurst. The copyright of this material remains with Julian Broadhurst and no part of it may be reproduced in any format without his express permission.

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## Dialogues with Tom Hewitt - No. 1

Tom Hewitt musicologist conducts the first in a series of interviews with Composer – Percussionist – Artist - Julian Broadhurst.

TH – Where do we start with all this music ? Where did you start with it ?

JB – Oh that is hard. Where did I start with it ?

With a longing – a deep gnawing at the soul. I had music all around me – I loved it. I loved records – the house was full of records as a child. My parents were both musicians and music was a part of school – every day. But when I left primary school, the atmosphere was gone – the ethos was gone – I just sank into the nastiness of it, and I was gone for a few years. From a musical point of view I lost music as an occupation. The love of music became a longing. My good friend James Rose was developing his passion into progress – getting his grades and forming bands – I would listen to him talk with such passion – how he inspired the need in me – and how unreachable it seemed. I owe him everything – from that point of View. He said ‘every minute I’m not playing or thinking about music I not a musician.’

I needed to change my life – I was on the wrong track – I had to give the dedication James had to my own life – but I was such a romantic fool at the time. Madly in love – with life, and music, and Girls and women, and Countryside, and Ideas and words – And Art ! The last couple of years at school – oppressive and crushing as they were, was the forming of me - as I fought my way out of this – toward music and into Art.

TH – So how did you get out ?

JB – Not through careful planning that's for sure. I was a good student – I had discovered and loved literature – I wanted to take it to university level but I just hated school and bang one day everything just hit the fan and I was told to leave in no uncertain terms. ‘For every man like you we loose we gain tenfold – I was told unhelpfully by the head of Sixth form. I found my way to college and music A level, after the long and visionary summer of 1984, echoing to the sounds of Mahler's 9<sup>th</sup> and Vaughn Williams 5<sup>th</sup> The Berg and the Bartok Vn Concertos, and the punk and gothic scene I fell into in town.

TH – You were a punk ?

JB –Leaving School was the Cork out of the bottle. I had to redefine myself during that summer – with a huge refinement in the Art and the poetry I had begun in the few months before and how I looked. So I spiked up my Black hair and wore a padlock round my neck even to the opera.

instead of getting down to hard work – I partied a lot of the time – I had a lust for life – but I was absorbing so much – talking about music all day – History, Theory there was nothing about it I didn't love with a passion. Abstraction, Modernism and Formality were also developing. In 1986 I declared that the set of seven seminal drawings from the summer of 1984 would be my Opus 1. ‘Seven Early Drawings’ after Berg's ‘Seven Early songs,’ where I founded the linier, Geometric abstraction that would occupy my life till 2006 – that's a book length story in itself – always planned to write it sometime – I even had the title ‘This

Intelligent Art' – in the end the 1000 page Website documentary 'Drowningcircle.com' took that title.

TH – That's Drowningcircle from Drowningcircle Music – where dose all that come from ?

JB – From The Cure's 'The Drowning Man' – That song I swear was about me. In 1986 – I wanted to found an Art Group – like Kandinsky's 'Blau Reiter' - 'The Drowning' – the others didn't have the passion so it became my publishing house – me at one remove. Latter I added the circle part to it – for my seemingly total devotion to Geometric Art – as I prepared to enter it's professional realm after leaving university in the late nineties. And because of it's Double Circle logo. Later with music – 'Now in a Time of Music' as I was fond of saying – I added the 'music' - and it became the record label 'DCM.'

TH – Which university - and did you study Art ?

JB – Warwick in 93 – and no – Warwick didn't do Art, or music – not sure I would have taken it if they had – or that I would have qualified. I took Philosophy with Philosophy – couldn't get Art out of my system though. Still trying to find my damn self and pick up the pieces from the cancer that nearly killed me back in back in 1986 - 88 causing what I called my 'wilderness' of Illness Trying to get my works looked at and getting knocked back all the time – that's a can of worms for me, even now. I discarded Poetry as an ambition and had developed the Art to quite a level before I was able to get to university as a mature student. An ambition from school that the cancer had put pay to. In those days university was for the relatively few – a write of passage as I saw it. Getting kicked out of school and then cancer at 19 – I thought my life could never get started in the conventional way. I couldn't then acknowledge that it already had started, in an unconventional way, because society wouldn't acknowledge it. Young people don't invent their lives it seemed, but they do, if they are beginning their odyssey. I coined the phrase 'Be world Ready for when the World is ready for you.'

TH - How did you do that ?

JB – through rigorous Documentation. Confronted with the real possibility of death at 19 in 1986 – I saw that there would be so little left – just a hand full of uncatalogued Drawings and poems – I had work to do – that's what my life had to be about. I get out and I start Cataloguing – I take the intuitive to found things – that would affect the whole of my life for the good of my life. I conceived of a beginning point for my art., the Op 1. The poetry was important then but today it still a sideline. It was though very important during my illness when my eyesight and hearing were badly affected by the cancer and the treatment – and it was an art I could still practice – even if I had to dictate it to my mother at my bedside, a long job reading back because I knew exactly how it should be punctuated and laid out on the page. Like everything it had to be 'Just so.' Books and sets of pictures took on opus numbers 'Sonata for triangle and line' nos. 1 and 2 – two sets of four pictures each. Minor works now but they show an intense association with music as though somehow the art was music. This was my intensity of devotion to craft - like that I had seen in James Rose years before. Like my Hero Berg – I abandoned Op. nos. I never re adopted them in music, That Op. 1 is still Op 1, if anybody asked. I adopted a cataloguing system for the art, the CW Catalogue or Canonical Works, 001 to 860 something. Actually the page numbering from a patter book I created of my work to date – in 97 - just out of university. Every subsequent 'Work' in that qualified sense would follow this with an CW catalogue no. to signify it's 'Acknowledgement' as such. I would mirror this in music after the change – as a

way of life I was used to. The Rh catalogue – Rh for recording at first – then just Rh. Helps you keep order over the chaos – of ripping ones life up and throwing it in the air - again !

So was Art a means to music ?

Importantly no – Art was an end in itself. I interrupted university to put on an exhibition, to get it out of my system. Then I vowed to put my art on the shelf for two years and devote myself to my degree. I even then took one course out of the Dept, this time in music. Music history, a dissertation on Mahler, through the English Dept. Warwick is not an Arts University, not then. But they had a course in Music History. I lost my supervisor to a new job at Birmingham - so was sent to Oxford to study with Peter Franklin one of England's top Mahler Scholars every other week – very exciting. I remember looking out over Oxford and thinking – they don't let people like me do things like this ! I took a lot from university, intellectually it toughened me up. So in that sense Philosophy was a means to an end - to Art – which I took up with renewed rigour. Within a couple of years of leaving university I gave my first London solo show 'This Elemental Art' in 2000. The rest as they say. . .

TH – Until as you say a man approached you, after you gave a drumming recital at the university of Derby, with his recording studio.

JB – Yes Quoting from my letter to French Composer Tom Sora - if I may – I've got it here - who asked why I' left Art and I couldn't put it better than I did here.

"There were two interlocking reasons why I left visual Art. Art for me competed with an ambition in music as a young man. Art grew stronger - became a life's project - music just a deep love and stage percussion. The Art had a very focused direction - to whit it ran it's course. Being once offered recording facilities in 2006 - then having my own - the cork came out of the bottle and 30 years of pent up musical composition - once satisfied by composition in a Visual sense - just exploded - and I'm still picking up the pieces so to speak. I had Nothing more to say in Visual Art - I gave it 20 + years undivided attention - including the huge documentary project I needed to clarify it in my own mind. I'm doing the same now in music.- just been invited into Your Musicology PhD study - could be very interesting. Drowningcircle - my Art publishing house - became Drowningcircle music - DCM - now my record label. I named my FB group as part of it - for the people I work with and other music friends".

That's how I started with music and a little bit of why – it is instructive to talk through this kind of thing – you never know quite what you're gonna see clearly for the first time. I can't discuss my music without my art. I definitely see the one in terms of the other. Some wag called me the Andy Warhol of the contemporary music world – not sure Its entirely flattering – not sure it isn't true in some respects – the way I have posed the same music in different timbres dose make me think of his multiple screen prints. I think I have a lot in common with Marc Rothko and Barnett Newman. Looking at their work I used to think I could hear it – I'm not a sound artist – even if I obviously have a lot in common with them. Everything begins and ends with music. Every gesture has to be in constitution music. I have to imagine performance into works even those that could not in principle be performed – much like a film would not normally transfer to the stage – but it is non the less theatrical in that sense of Acting.

TH – Let's step back – You effectively left Art for music – to record Percussion ?

JB – Yes – though I didn't just throw up my arms and say 'That's it' – it was the opportunity I had waited many years for – so naturally I grabbed it with both hands – nearly 900 works in geometric art or Elementalism as a branch of OP Art – I'd just finished the commission for the Oxford University's new, glass and steel CRL Building 'In Atria' which was a big project – and I was drained – the last of the twelve in the In atria series was hard – Oxford Physics had wanted it – by this time I was already working on Drum recordings in my own 'Drum studio' – not the most imaginative of names I'll grant you. But – percussion was still a side line to my Art – to my Career as an Artist – change was unthinkable.

TH – Step Back again - I need to unpick this web of events – percussion – where dose that come in ? To start your music it looks like we need to start there. If you gave a percussion recital it was presumably more than just a sideline.

JB – I'd been drumming for years. It vanishes into childhood – We a had a metal cabinet as part of the kitchen furniture with a gas boiler in – it was warm – sometimes too warm, oftimes cold and I would sit on it – and percus on it with my fingers 'Gloriously' ! I acquired a menagerie of drums – African, Indian – and a double ended Tibetan drum, which would later become a showcase instrument for me. I would stay up late into the night playing – imaging an audience. Years pass and I'm often spending time with my mother at small folk events and things with Her folk Group 'The 'Red lion Band' - I became their timekeeper. Onetime at Bonsal Rhythm Café' – I took a solo spot – improvising three short pieces. I became a regular act in the late nineties and all through my Art Career. It was a sideline – a break from my real work as an Artist. I adopted the stage Name 'Perpetuum Mobile' in perpetual motion. My playing being vastly broadened by the gift of a wonderful small Djembe - the inside of which I polished smooth. Its sound is amazing. by inserting a hand in the bell, like a French Horn player, I can change the pitch. I used it so many times in recordings and on stage. I gave the first of two recitals at the University of Derby in 2005 and the second, an evening's performance, the following summer. Where I performed for two hours to paying audience The University were happy I could do it – and I promoted it on the radio – the BBC making my very first recording during an interview.

TH – becoming serious then ?

JB – developing certainly – but I saw it at best as only another part of my life – not as a documenting stream of creation – there was no cannon – yet – but tantalisingly I was a step nearer to there being one. It was very strange and very exciting. To record sound was like discovering a whole new dimension, that you knew was there but that now you could actually move in.

TH – To 'record' Sound.

JB - Indeed – and to keep your Ideas and actions – and take them home with you - it opened such a longstanding ambition. Walking about, I'm always playing things – stairwells – cabinets – any resonant object - If I can grab some time on it. With my hands and feet – often I had sticks in a pocket. Walking up the flights of stairs to my flat – the whole well is delicious – sooo many times – every foot and stick fall – the timing and the timbre – it is a work in lieu of becoming an Actual work - for the wont of recording – of setting action in stone. Like a photo of the ephemeral – like a picture in the sand on a beach - captured. I was at the Northern College in this big old Country house – Wentworth Castle I think it's called, in Yorkshire. It had this huge wooden floored ball room with a wooden step – and ohh the sounds of foot taps int hat ambiance, I love the vastness of reverberation, like in a



cathedral, when the organ stops playing. If I Can just take a side line here - I did a whole album about this effect - with Dave Dhonau in his studio – it's called 'Gargamele' - D'juil 12. Yes - reverberation adds life to a recording ! Anyway, back to this Wentworth business. Years before I recorded, back in 1988 It was, I think that it is definitely when I realised that I had a real ambition in this direction. Horribly ill again not long after but the point I'm labouring, is that I ached to record sound, If I only had the means.

TH - The desire to compose was in you ?

JB – absolutely. Listening to Tangerine Dream as a 15 year old – I wanted to do that. They styled their albums as having been 'Composed by' They were 'Composers' but not like the Classical composers I was listening to and loving. It was only when I discovered Stockhausen that those two worlds met – I could be a composer – something apparently only mythically given to certain individuals in the past. I premonitiously imagined a steaming music of crashing metal.

It is one thing wanting to compose – it is quite another having something to compose. Something I had forgotten about until we started this – I held the triple ambition of Music, Art and Poetry – bursting out at that end time at school – but the one that didn't flourish was music – Art did with what I later called Opus 1 and Poetry too – but nothing tangibly musical – so I resolved in a grand Teenage mission statement to go to college in the autumn of that 84 summer– and begin my study of music properly. I took Bootcamp and a few weeks later concurrently was invited in to the A level group. Made friends I have still – learned a million things I love to this day – Classical music – all day long !! I was in it 84 to 5 - 5 to 6 – when I got very ill – extremely so at Glastonbury – I thought I had just been partying to hard and had worn myself through – so did everybody else including my doctor – who lost his job over it but that's a whole other story. Pretty soon after I was rushed to the Queens med in Nottingham with a brain tumour.

TH -When you sensed there would be nothing left ?

JB - And where I swore to a Chaplin that I wouldn't die – and to myself to redouble my efforts in the Arts – and to document.

It was a bad do – you just expect the operation will fix it – Nooo ! They don't tell you about Chemotherapy and radiotherapy and reoccurrences this time next year and the damned year after – when things got really bad – but I'm not here to tell that story. Suffice to say it's why I walk with an arm crutch – and I'm still shot through with the side effects. I got very close to my Mother at this time – a close friendship that lasted till her untimely death in 2011. And that's a whole other story. She had a natural not a schooled understanding of my Art – which started to flourish from the early part of 86 – when I had to leave my first exhibition – at Derby's Green Lane Gallery – standing to be taken down for me as the illness took me – and my 'Wilderness Years' through the convalescence to university – and after she would help me Frame and hang a dozen of small exhibitions – some of them quite decent galleries. She was quite an artist herself once and I loved her dearly. The least said about my Father in all this time the better.

TH – 'A whole other story' ?

JB – Oh you got it !! Soo – the wentworth story – the wooden floor – Yar di Yar – University – at last never thought I'd make it – Pictures. Pictures – it's all about art – when I'm not Drawing – or thinking about or talking about Art – or planning shows – or having couriers

move huge Artworks around the country – then I’m not an Artist. Remember James Rose and his dedication to music – I’d found mine in Art. Music was then a hero worship Dedication to Modern music – I was limited to what you could buy and by my own knowledge – which I gave most spare hours to - listening and studying – when I was not working. I supposed it would go on for ever. Composing pictures and writing documentary - the ‘Drowningcircle’ website and CD rom – remember those – my whole Art, eventually, on a disc. 2006 – I finish Inatrium – drumming is still a side line. I often asked Galleries if I could also perform – but was always politely declined. So when the University ofDerbygave me the Evening Gig – in a big room - just me – then recording. Well - I didn’t have an intention to leave art – I thought I could work them together – but I made no Art in 2007 – I just didn’t have time – more properly I didn’t have the need. I had 30 years of pent up music in me. I couldn’t get the gig recorded – I’d left it too late to arrange it – but Very soon I was recording - and issuing my first albums.

TH – Thankyou Julian and Next time we’ll talk about the music itself.

## Dialogues with Tom Hewitt - No. 2

The first albums – the coming together by growing apart and 27 Blue Cherries.'

Musicologist Tom Hewitt conducts the second in a series of interviews with Composer – Percussionist – Artist - Julian Broadhurst.

TH – We left you at a seminal moment at a drum performance at the University of Derby – where someone offers you the use of a recording studio ?

JB -Yeah, this really is the beginning of my music – 'I can sit and I can think; – the day is mine to create – that afternoon in Marehay I created my first Album – I had borrowed a genuine Native American Frame Drum just a few day's before - and recorded a series of pieces just with this. 'Inventions for Shamanic Drum' – seven pieces recorded in the order they appear on the album. The album is styled as by 'Perpetuum Mobile' – my stage name as a percussionist – JB being the name I still reserved to sign on my Art works – as a trademark.

TH – The Artist still ?

JB – Absolutely ! And there are problems which emerged quickly. I don't drive, that cancer of mine was a gift that kept on giving. It's a long way, also I have to be satisfied with him as a producer, and I'm not really – but even so I'm selling copies of the album – I grew up with albums as a gold standard of musicality – now I've got one of my own – who wouldn't love it– but there are problems. Not the least getting up here and getting time here.

TH – How were these pieces recorded – in a stream and then edited ?

JB – Well No. that's the spooky thing about it – they were recorded one after another in single takes – with short breaks between. I would signal that I was ready to go and I was live. No false starts – I played the album into the mike. In the headphones I could hear a live ambiance – so I played to it – using it's proportions – decay etc to proportion my performance – my dynamics and timing. The last piece – just as an experiment - he showed me some 'in-can' effects I might play to – I chose bird song – a theme I'd Come back to in later works in my own studio.

TH - So that is perfect to tape ?

JB – Not Quite. One of the pieces had a couple of timing errors in it, minor over 70 + minutes but later I corrected them myself when I came to remaster them in my own studio. There were recording problems with the 3<sup>rd</sup> invention due to the improper positioning of the microphone – where I shook the drum at the microphone as the sound decayed. Not his fault – he didn't know I was going to do it and neither did I – till I was doing it ! It was a very experimental piece.

TH – So this is your first ever time in a recording studio ?

JB – yes. Well apart from the BBC radio studio a few weeks before my university gig in promotion of that – that piece is the very first – but this time is qualitatively different – I'm recording an album – my life is changing again – permanently.

TH – And you cut your first album in one afternoon ?

JB – well, if you discount – the remaster and the review processes that followed then yes – certainly the ‘text’ – the Aural score – the fretwork, – was laid down fully formed in one afternoon. But understand - I’d been playing for years before then - 25 – 30 years I don’t know – I knew exactly what I was doing. Only difference was I was being recorded.

TH – Nervous ?

JB - Not really. Huge adrenaline rush but I knew what I was doing. I am used to playing on demand – just not used to laying it down.

TH – This word ‘Invention’ – I think it tells me everything – but just go into it.

JB – It has a long history with me. I used to describe my process of drawing construction as ‘Invention’ – I was very aware that previous moves within the rules of engagement I’d set – the Elements in Elementalism – more or less gave rise to the next – a form of structured rule playing I had inherited from musical ‘Invention’ – particularly in the work of Bach. And that is the context from which I take the usage of this word. The construction of every phrase is one of process. I live every process – and every minute step of Sense – every sentence in the punctuative scheme leads to the next. This album is very close work – it really is a live Composition – ‘Comprovisation’ someone called such a process – Bernhard Gunter ! think it was. That’s ‘Compro-Visation’ not ‘Compro-Miseation’ – there are no compromises here – it is very exacting and I am in complete control. My friend with the studio was a technician so much as a producer – I was certainly the producer when I subsequently remastered it - as I got ever more exacting.

TH - You were clearly ready for this.

JB – The Cork was out of a bottle and it would be impossible to it put back into – I needed it so badly. At the 2nd of the 3 sessions I I recorded a 15 minute piece that disappointed me for years – until I came around to remastering it properly – I just overlooked it for a long time – and then I was really surprised by it. The 3<sup>rd</sup> and final Marehay session was for a proposed second ‘Perpetuum Mobile’ Album - PM2 - and the four pieces we laid down that day were life changing – like the first album was – but an order of magnitude more so. If you can have such a thing I had it that afternoon - about 3 weeks after the first one. I’d never played better in my entire life – on the second piece especially. The patternation and controlled multiple parts I had put into it – I had never done anything like it. It set a plan for sustained exploratory works – such as ‘Basspoint’ – some months down the line – which would be my first really ‘Big’ piece.

TH - Oh tell me about that structure ?

JB - I was controlling a series of exploratory, playful phrases – playing to and sounding off the Ambiance – the spatial Volume – and then building up layer upon layer of complexity. Exactly the technique I’d use in Basspoint but I’m getting a head of the narrative – this first period is so dense – my whole life was up in the air.

TH – Lay it out as it happened if you can – I need to feel the clear path of it. You are moving away from Marehay. What happened with the second album ?

JB - Yes that is the critical or the pivotal point. The Second album, for PM didn’t happen. I was by this short time already dissatisfied with the Studio – at Marehay. We’re talking a

period of a few weeks here – a month maybe – I’ve got a small digital recorder laying down Drum and environmental pieces in digital compression maybe flac I don’t know – but I couldn’t write them to CD. I wanted a third album of the pieces I’d recorded. The thing was he couldn’t write it either. So – I need studio software of my own – and I splash out. I get computer studio kit – and I can write my Pieces to disc – I put the 5 new Marehay pieces together – and for the sake of their advancements in technique – I call them by the magic word - Sonata’.

TH – But not for ‘Sonata Form’ ?

JB – I took my cue from Hans Werner Henze’ – who said the old forms were broken – so I took the word ‘Sonata to connote a piece given to advance and display the technique of the Composer – Performer – In this case I am both – and I believe I am justified in my use of that word – in this context.

TH – So you lay two definitions down so early – ‘Invention’ and ‘Sonata.’

JB – Yes. Inventions are a set of technically heightened pieces – which are not movements but rather parts in a suite – probably but not necessarily thematically related and nominally independent Individual pieces could be called inventions but are not – the point is of their being in a suite for a solo instrument – al la Bach – my model and Master. The individual ‘parts also carry Rh Catalogue numbers – That’s something else I laid down in these first weeks.

TH – Take it – slowly – clearly – let’s Iron out the difficulties as we come to them – that’s what musicologists do ! So – Invention and Sonata ?

JB – Thank you Tom. A sonata – could have movements – later ones do – they would however be thematically bound and they don’t carry Rh numbers – the movements are not individual works they are parts of an Rh catalogued work. I would denote them as Rh ‘whatever’ - i, ii, iii – etc.

TH – The Rh number is something special then – Like Opus numbers ?

JB – Like Opus numbers but not quite. An Rh number denotes a ‘Work’ in the Art world sense.

TH – Oh couldn’t we talk for hours about the Philosophy of the ‘Art ‘Work’ – but for our purposes I think we know exactly what we are talking about – we must both have spent hours considering it !

JB – Days ! - An Op number Connotes a published work like a suite - like Chopin’s Etudes – as sets.

TH – Op. 10 and 25.

JB – exactly – which are sets of pieces.

TH – as in baroque times – in sixes and twelve’s as published editions.

JB – Editions for me are often Albums - or CD length collections. Whereas an Rh number denotes a 'Work' – the 'Acknowledgement. of a piece as such – my 'signature' on the work – if you like

TH – So you have in completing these first 2 albums yourself created the distinction – in your own terms between an 'Invention' and a 'Sonata' ?

JB – And I don't think I've ever made it so clear.

TH – So - You have now two albums and a rudimentary studio.

JB – The Drum Studio –

TH – The Drum studio and a bagful of recordings that you can now write to disc yourself ?

JB – and I did but I didn't have any plans to publish it - it remained as it was planned to be - just a collection of studio pieces – maybe not ever for publication – it was a nebulous Idea as my New 'Drum' studio kicked in - As this first Period of my new work was ending there was several such collections and not all on drums. It really is important to understanding how all this work comes about. I have one album – a second one in the can – and a growing collection of pieces in CD length archive collections as Perpetuum mobile. My simple PM period is giving over to something more complicated.

TH – Ahhh ?

JB - I'm broadening the remit – it's no longer just Drum percussion. I'm experimenting like a guy in a white Coat. I've described this time as an 'explosion of creativity' - in several directions at once. It is becoming obvious that these activities within the field I am starting to think of as composition – are separating into areas of distinct research. Separating off from the original PM drumming. I Now adopt the name I used for my Art – my own name - not a stage name. Albums from no. 3 onwards would be Julian Broadhurst albums – if published. The notion of the collection as an Album was becoming irresistible and had an unexpected momentum of its own.

TH - So a newly evolving era. A new period – as you say.

JB – These emerging areas of compositional interest have recording facilities set up in different parts of the House/Studio. I'm starting to call these 'Sections' or '**Tranches**' of my working interest – to build and define 'a music' of / for - in that area. Along the lines of my Art Practice – nominally I'm still an Artist - just neglecting it. Leaving Art was unthinkable – I'm an Artist not a composer. What business had I – making music ?

TH – Oh please – go on – the emergence of the Tranches.

JB - The first of these, 'Tranches', or areas of 'Research' interest – to develop a 'music' identifiable in itself' was obviously Drumming. That's where I came in – and my way of looking at it had always been to create a 'music' – distinct in itself – as of invention for or to satisfy an aesthetic of performance – a notion of percussion being satisfactory and sufficient as music – in and of itself. And that is a well accepted idea in Contemporary music.

TH - The emancipation of percussion in the Modern era.

JB – Quite - So we have a 'Drum music' – notionally – nothing's set in stone yet – just 'Marked it out on the as yet unbroken ground – to borrow a metaphor. That is what this period - was all about.

I've always been one for naming things – it helps me short cut the thought. This stage of Ideas and emerging definitions I call – after a 10 CD Box Security copy of my then works that I made to give a close friend who I affectionately call Cherry. Drawing 3 red Cherries on it. So this is my **Red Cherry edition** – it is important to me as a document. Remember the hospital – document – document – document. A snapshot of where I'm at.

That first PM period I thought of as white – all new as it were – then because of Cherry – I get Red - It's getting a bit like Picasso here Yeah ?

TH – It makes perfect sense to understand ones self in that way. Just to sum up for myself – The Marehay period as Perpetuum Mobile is over – you now have the drum studio and are recording pieces for drums but also now experimenting outwards into other fields – notions of music – and it is this expansion in terms that marks the change.

JB - You have it exactly.

TH – It is something Qualitatively different – and you have thought to think of them as colours – how very visual.

JB – Yes that PM period as white – that Red Cherry security Box - with the music in Rh order but in no stylistic order as yet – I copy and lodge with several people. So I get to think of this whole developmental time as Red. Only short time down the line from Marehay.

TH – I think it is helpful to make these distinctions – doing my job for me actually ! Helps me see through this emerging complexity.

JB – me also – I've never really gone through it like this. The music on the red Cherry discs – is as yet unsorted – still in the CD length collections of works as they emerged – **notionally in Tranches** but not yet in any fixed order. The Red Cherry Edition is my whole musical life at this point. My obsessive need for documentation in action – helping me cope with such a momentous change in focus. Through this I became aware that these areas of interest are a defining feature of my music.

TH – I hear that. So lets really look at the Tranches. There are five of them ? Yeah ?

JB – Yes Five. Firstly, naturally – there is '**Drum music, or Dm**'. It's where I came in. Music constructed primarily with Drums – a notion of a music with just solo drums in a paired down Elemental music of just Percussion - **Timbre and Rhythm**. On all kinds of drums in solo inventions, Solo Sonata, studio Collections, and ensemble pieces – All this with an emerging use of electronics – which widened my pallet enormously. On the 3<sup>rd</sup> album or Collection – then mostly but not exclusively Drum pieces – which didn't yet even have a name – was a piece I think of as my first electronic modification. At about 14 minutes in length '**Sky Side full of Echoes**' – a title that derives from a work of a composer much in my thoughts over the years - Robin Holloway's 'Sea Surface full of Clouds.' I set up an echo that just precisely worked with the tempo of the original drum – setting up a cascade

of tumbling drumming and a life long affection for such 'unplayable' works – a la Millton Babbitt.

TH – we should pause to hear that.

[Pause for music]

JB – As I start to separate these collections out into just drum music the 3<sup>rd</sup> Album becomes a Drumming project and that title would eventually give a name to the 3<sup>rd</sup> album '**Sky side full of Echoes**'. It sets a pattern in so doing – where a track from a collection would name the album - if it contained more than one piece.

TH – I hear that.

JB - This 3<sup>rd</sup> album, is now the first in a series of volumes of '**Drum Studio Studies**' - particularly albums 3, 4 and 5. Which become albums **Dm 3, 4 and 5** with the adoption of the two PM albums as DM 1 & 2 and rightly so. A small difficulty with this adoption was the Rh catalogue – which numbered 'by recordings' from the first recording I made. Excluding therefore the PM recordings. These became '**Rh P**' for 'Perpetuum' or 'Pre' The BBC Recording becoming Rh P1 – which it was. Problem solved.

TH – whoa slow down It's complicated – but it isn't – Yeah ? You adopt the PM albums under your own name and solve the nomenclature problem arising with an insertion of a 'P' after the Rh standing for pre or Perpetuum – Nice !

JB – I need it to hold this whole thing together. I had to solve problems as I confronted them.

Th – The Backbone cataloguing the whole affair –

JB – Exactly - and preserving the original order of composition near as dam it - a useful underlay to all the albums – Tranches et al to come.

TH - So in this Red cherry period two more life changing distinctions emerge – between areas of musical research – these five – that we are coming to and the adoption of a cataloguing system that mirrored that you used for your art works.

JB – to distinguish between Art and Music as I still thought I would be going back to art in some form – but as that momentous summer of 2006 tuned to the new year this was looking ever more unlikely. After I had made no new Artwork in the whole of 2007 I realised for sure I had left Art – such a blur – time just flew !

TH – The explosion of creativity you spoke of !

JB – The pieces of which are in some sense still falling back to earth.

By defining Drum Music I have ruled into existence another species of percussion – environmental – on Metal – on wood on anything other than drums. My own very first recording are of my playing the outdoor world – Metal fences , railings, benches – cabinets – any sufficiently resonant object. And these recordings were all over the Red Cherry discs – these I collected and called **Metal Percussion music, MPm**.



I had a lifetimes love of the sonority of metal – born of 1980's Art Pop music as much as anything else – and 70's 80's 'Industrial music' –Faust, Einstenzde Neubauten et al and of course Dear Stockhausen and Xenakis. So many works of mine include or are based on metal sonority. From tuned – Bells gongs, Piano's Xylophones et al to to untuned voices or Ideophones – who's indefinite pitches are an exciting mechanic for my music making. I had defined into existence the second Tranche. I realised that this was a totally separate area of musical interest. So there could not be now a single chronological set of works but rather two Concurrent chronologies. It's this idea of presenting Chronological sets of pieces from these emerging areas of research interest that gives a need for these Hard distinctions as **Tranches**. This new level of distinction would necessitate a new way of looking at things. Where each Tranche - with its own set of recordings – must have its own set of albums – within my albums – ohhh complexity –

TH – You're talking to a Musicologist – Complexity is my business – we take the Rawly complex and understand it for the public. Let's get through this step by step. So - two Tranches – Dm and MPm – your percussion Tranches.

A third Tranche emerged really early on in the form of pieces that I had pushed along way from their acoustic origin- maybe because I wasn't excited by their acoustic origins – too humdrum – I needed to be excited by what resulted – a idea only became a work if I had teased out or found an **excitement of musical adventure**. I have often heard it said – and have often repeated the maxim that "One makes the music one most wants to hear." I also maintain that one must know the sound of the music one most wants to achieve – and when you find it you recognise it as such and stop -and publish as a New **Kind of Work** and I did. This third class of really adventuresome experimentation was through the Timbrel infinities of electronic manipulation. By creating hundreds of presettings from gossamer washes to wrecking balls I could effectively paint with music. This third Tranche Chronologically was of an **Electronic music, EM** – separating off as a sort of Cinderella sister at first but it rapidly became enormously important and by far the largest part of my output - presently 42 albums.

The third Tranche to emerge was to ended up as the fifth Trance, in the next big upheaval, by another definition. That of **Tranche order**. I said that Electronic music had travelled the farthest distance from it acoustic source. So the distance a sound is seen to travel **from its acoustic origin** became the test for the positions I set for the Tranches in my position order of the whole damned thing. If I've got five Concurrent Chronologies – so how do you write that down in just two dimensions? I'll get to all that.

TH - This is really crucial, I feel, to understanding your music.

JB – I'm afraid it is – I can rattle it off much quicker than this, but you won't have the full picture of how it happened. And how is as good as why.

TH – Please, carry on.

JB – Electronic music of course, as I explained last time, is seminal in my love of music and desire to make music in the first place. The Cosmic music, in German 'Kosmiche' – of some Tangerine Dream and a minute proportion of Klaus Schulze. For TD the classic 67 – 77 era – the live concerts – tortuously collected on bootlegs and some remarkable Albums then and in the very early 80's. For KS the Albums - Cyborg – X [ten], Dune and Trancefer. The rest of all their gazillions of albums I really can't abide – their fans would be horrified but to me it is dross. Contrasting starkly with what I love and which I worship. As a very

young man of 15 – 18 and many times since I've drenched myself in their vast deep listening – where the slightest inflection was an event of import. This deep meditative quality underlay my own need to compose such pieces – which litter my own electronic output. And, which take the process of 'deep listening' to it's its logical extreme.

TH – You took a lot of things to their logical extreme –

JB – Sometimes ideas need to be tested to destruction to prove a point.

There are many other people in my Cosmic cannon I could talk all day about them – but that's not why were here.

TH – It is instructive to hear about these origins – it throws a light on your work.

JB -There is something in the quality of this 'Cosmic' aesthetic – that chimed with me and with the sensuality and sensibility of some strata in classical music. My own is not at all about the decadent 'OH-Wow-Man-ism' of space rock – no not at all - it was the Cold elemental stillness, the depth and dynamic - a colour of form - that I derived from it - for my own work. In a deep, total immersive musical experience – where the **Cosmic Aesthetic becomes one of music itself**. An 'Elemental music', an Elementalism of music construction. Al la the Elementalism of Form and Space in my Art.

TH – Back to Elementalism – back to your Art.

JB – this kind of analytical construction from a studied deconstruction is very necessary with me, hence these Tranches each focusing on some aspects of composition. Two more to go.

The next trance chronologically in this series is about **experimental construction using tape loops to generate unanticipated coincidence – in harmony dissonance and melody** and it derives from the first three. Carefully working out tape lengths, start points and phase points. The first experiments in this were with Concrete sounds – recorded in Hospitals and offices, on stair wells, lifts and doors. MPm + Em giving **Phase music or Phm** – and a whole series of albums being generated though this. Hundreds of compositional decisions being taken – to firm up a project toward – what **I would want to call – and to have it called – music**. From percussion – on Drums, wood and metal – through electronic augmentation and now through phase manipulation. I was not building pieces to rush out and publish – no I was researching, creating compositional studies – and building up hour upon hour of pieces. Only then did I have the **hinterland of experience** to put everything together in a **formal music** - a '**Notional Classical music**.' This is my Electro-acoustic music. Not so far from its acoustic origin as what I ruled out as Electronic music, Em - and yet the distinction is sometimes tenuous – things were all heading in a similar direction. Toward the reward some notion of an advanced music. This chronologically last Tranche I **called Music for Strings, Electronics and Percussion or MSEP** for short.

TH – What a journey – this is you discovering yourself in music !

JB - Now I needed to orientate myself in the first of several reorganisations – of the musical body. So I bring all the pieces together – the Red cherry content and everything since. Some 'collections' are of consecutive pieces are from the same research area and will remain unchanged. Others need reorganising to ensure each 'CD 'box file' becomes a

proper Tranche collection – so that the Five Tranches – section out into their own series of Albums – numbering as such.

TH – Let's pause there – I need to absorb this – These five Tranches – emerge in the order they do because they define each other – by content - by exclusion – and others define themselves by combination – exhaustively as it were. And each has it's own chronology –

JB – Of Development –

TH – Of Development – Quite.

And that order is the Rh catalogue – which gives a fixed background Compositional order – a universal order irrespective of content.

Uniting these – disparate areas of musical research – as being yours – of your experience and authorship -

At Five removes !

Each of which then with its own set of albums –

A Tranche order – for those distinctive albums to show the development in each area –

Using the Rh order – Chronology within Chronology – times five – so in what order do you write those down – Yeah ?

I see your problem – what order do you write them in – if all the contents – The works themselves – are for the most part concurrent – across all these albums.

You had a problem [Laughs].

Your old Cherry Red presentation needs a rethink.

JB – A new Colour – **The red cherries turn blue !**

TH – Nice !

I talked about how the trances came about in that Chronological order but for the final transformation I adopted the notion I spoke of – of the **Distance a Tranche's notional content is seen to be transformed from its acoustic origin.**

TH – Ahhh – so that gives the order Dm –

JB – Naturally because that's where I started –

TH – Despite the use of Electronics in some Dm pieces –

JB – Yes – it is fundamentally a guide The Electronic are all electronics with drums – there are limitations – overlaps even errors in this compilation – but it was and is a good guide to the kind of content and when and to some extent how it was done – which is really your specialist interest –

TH – Most Certainly – So Dm – MPm –

JB –Because like Dm it is often purely acoustic but I ruled it into existence from Dm so it is second.

TH – Ok – Dm – MPm – Phm – because –

JB – Because it transformed – though electronics primary materials from Dm and MPm.

TH – Ok – this is just for my understanding – I want to understand where it all comes from – so forgive me – a snails pace – but I'm totally understanding this reasoning – Ok then – Dm – MPm – Phm – MSEP –

JB – away from the original acoustic source – but not so far as Em

TH – then Em is positioned Last. Got it.

JB – I think we are ready now to get past this Bloody third album and we are still much less than a year out from the Big Bang as it were . . .

[Both laugh].

More Tea –

TH – I thought you'd never ask !

[Long pause for tea and home made cake –or rather that someone made in their home and we just enjoyed] !

- So finally – to those Blue cherries –

JB – to the **Blue Cherry Order** – the first 27 albums – my complete works to that date – in 2007 – not so much finished or for publication but notionally in there place – an order that I will want to keep and which is fixed and which is now published as my the first 27 albums – importantly standing as the foundation of all that followed – and colouring all that followed a deep blue. These then are the **Blue Cherry albums**.

At album 28 – a DM album – the albums would be numbered in the Order they occurred but these first exploratory albums had to be collected thus because their content is virtually concurrent – the true chronology being only their Rh numbers – if anyone were interested.

TH- So - all those these various works - on various Discs – taken straight from the various parts of your studio spaces and stored centrally – the red Cherries and subsequent works- were sorted into Tranche order – and those Tranches themselves are then presented in a canonical order of a notional distance from an acoustic origin. I think we are getting somewhere.

JB – well I knew where most of them would go – some were hard to guess – I got the odd couple wrong – but this was a process of setting in stone – collections became Albums – as the volumes in a notional collected works – to be as ready as I can at all times and at each step of the way. Be your own academic I used to say about my Art and I was – et al.

So it is here – because if I don't do it – who the hell will – I've got to give people a chance to understand this stuff

TH – I understand your need for clarity – So – **Dm – MPm – Phm – MSEP – Em** is the now the Set Cannonic order.

JB – Fixed and forever – it may have been more explanatory the other chronological way – but this is the way I chose.

TH – As you say 'how is often as good as why'.

JB – Let's get down to the Albums. The 27 Blue Cherries.

Dm – comes first naturally and takes the first 7 albums. The 2 PM albums – '**Dm 1 Inventions for Shamanic Drum**' – and '**Dm 2 Five Sonatas**'. Incidentally Five Sonatas was named in homage to Hans Werner Henze's album 'Five Symphonies I bought at 17 – in that summer of 84 -just from the look of it - and it changed my life – no word of a lie.

These are followed by three volumes of Studio Studies '**The Drum studio Studies**' – collecting the fruit of hours of studio work – including the birth of my Electronics. The almost legendary third album at - last is - '**Dm 3 Sky Side Full Of Echoes**' - then '**Dm 4 Voodoo**' and '**Dm 5 Saar**.' A whole world of development for me..

Album 6 is another Seminal collection of inventions - my '**First Inventions for Djembe**.' A landmark set in my work' - because as I would say I could see it for miles – I called it 'First inventions' because I thought I'd do this again – next week you know ! The 'Second inventions' were years away. To digress a moment – the Last Album but one to date, - is my Fifth and surely Last set of inventions for Djembe – I can't imagine music more complicated for a solo drum.

So I played these First inventions for Djembe - like the inventions at Marehay only months before - in one afternoon- into the tape – It was bloody fine shot – but I didn't get it quite right first time – I learned much from this. Now I'd place them amongst the best things I've ever done. The Seventh and last Dm album in this Blue Cherry Group – is another Volume of studio Pieces named as ever after a work on it '**Dm 7 Trio Tamarind**.'

TH – Let's pause here to hear a DM piece –

JB – I think it should be – First inventions no. 2 – Rh 125.

TH – Definitely.

JB – More Tea ? [Music Plays].

And now for something really difficult – The second Tranche **Metal Percussion music MPm**. My 8<sup>th</sup> album – 8<sup>th</sup> though in this grouping only. Importantly, it is concurrent with Dm 3, since my first recordings – that I made myself - are with percussion on drums and on metal. The Two PM albums are older – I didn't record them - but I mastered everything – everything has to be 'Just So' as I would put it.

Back in those first days of my Drum studio – I had a kind of workshop – full of metal boxes and objects that I could Bash ferociously sometimes using Siouxsie - my Darling metal

strung fretless bass as tuned percussion – an Aladdin's delight. We haven't got many neighbours - bloody good job really – I made a lot of noise 'in the service of music' - experiments sweet and sour into Timbre and Rhythm – with and without electronics. Three Volumes of studies emerge from this time – '**The Metal Shop Studies**' or just **Metal Shop** to name this whole experience – usually carried out at night. Albums 8, 9 and 10 are then - '**MPm 1 Mode**' – '**MPm 2 Jentoo**' and '**MPm 3 Lampjack**.' All titled after pieces on them. They form an obvious parallel with the Drum Studies but infact All the Tranches Begin with 3 volumes of studies. Studies were the order of the day and 'three is a magic number – or so the song goes.

TH – and what piece have you chosen from Metal Percussion music.

JB – well that was hard – this stuff is not easy listening. These were the really early days for MPm. Album 4 in this MPm series - some time down the road - is a real gem of a 'Concert Piece' - in the spirit of such work that is. A large scale test piece for the genre - the '**Sonata for Tuned Metal no. 1.**' So from just these three Blue Cherries in MPm - I'll pick a piece from **Mode** – 'Slip in time – Rh 38' - where my percussion appears to make a metronome slow down – an old party trick of mine !

[Pause to hear the Music]

And So to **Phase music Phm**. I had taken the Phase music quite along way already - resulting in 5 albums of Phase music. The first 3 Phm albums are a 3 volumed collection of early studies – Phasing studies from a dedicated space in the studio called the **Phase Lab** followed by two sizable Works - each over an hour long. The highly experimental '**Click Track Toe**' and the complex '**Jove**.' Phm by this time was getting quite sophisticated. Jove – Rh 145 I describe as a Phase Montage for Drums.

TM – A very Visual description.

JB – The Art World would have been only something short of a year behind me. I'm not sure exactly. I didn't keep a studio log – there wasn't time.

So albums 11, 12 and 13 are '**The Phase Lab Studies**' - '**Phm 1 Mechanical Phase music**' – '**Phm 2 Elevation Phase**' and '**Phm 3 Mechanical Clock music**.' 'Mechanical Clock music 2 – Rh 103' – is quite the the Iconic piece for me – to borrow another visual allusion. All this Early phase music was built up from tape of environmental sources – like Hospital Stairwells – squealing doors closing and lifts. These early Phasings are built from a percussive frame onto which is hung an analogue of a melody. I decided to adopt the frame and the completed piece as 'Works' with consecutive Rh numbers. Albums 14 and 15 are then the two huge pieces of Phase montage. '**Phm 4 Click Track Toe**' – punning on the position game 'Tick tack toe'. Which in some sense this is. A fabulously complex wurring of Click tracks – phasing minutely for an hour plus – not everyone's cup of tea I grant you – but an experiment I needed to make and exciting in that sense. It's quite interesting actually – I'm looking always to make some kind of music – to find and Define music - so the timings create all sorts unexpected angles to ponder and tipping the time clock at over an hour as does the next piece. '**Phm 5 Jove**'- is a tape phase montage of Drum patterns – and for me revelatory that I could imagine such music let alone make it !

TH – We should pause hear that piece - Mechanical Clock music 2

[Pause for the music]

TH – So we've touched on 15 of the 27 albums in this Explosion of Creativity and 3 of the 5 Tranches that hold them – as you said – '30 years of pent up music.'

JB – **MSEP – Music for Strings, Electronics and Percussion** – is chronologically the last Trance to emerge as a combination of everything else - MSEP was the new kid on the block at this time when all my various pieces were brought together under their correct banners. So there were then just 3 MSEP albums – notionally of studies but quite sophisticated ones non-the-less. I'm very fond of this word 'notionally.'

TH – The notion of it certainly -

JB – And the first of these Album 16 - is **MSEP 1 The Beethoven Transcriptions** – compositional exercises on a grand scale – but musically not important. Think Andy Warhol.

The first real contributions to the MSEP Project of making a cannon of 'Concert' or 'front line' music - chamber pieces with with a real time performance and electronics – recorded as a composite Electroacoustic – to present as '**Concert music for the 'Private Ear.'**' These were a 'Sturm unt Drang' for Cello and electronics - the albums '**MSEP 2 – Countout**' and '**MSEP 3 – Termanstrung.**'

TH – I have publicly said I find Termanstrung an interesting Album – what dose the title mean ?

JB – It's a compression of 'Term and Strung' – Period and strings.

TH – Lets pause to hear the piece 'Termanstrung – Rh 137 – I'm reading from the album cover into the tape

"My Sturm unt Drang Period, a time of Noisy, grinding, Ritualistic string works, smashed to pieces with electronics. The Cello became my ultimate dissonance engine. Someone once said 'you can't play a wrong note on a saxophone,' to a certain extent I felt that was true of the Cello, where it's every extra musical sound, of playing or tuning, or microtonal interval, was redolent of music.

production, an echo of musicality past, distant past, and of the visceral excitement I feel for the barbarism of Contemporary string texture. An Elementalising of String texture. The First, of 3 consecutive works, is Termanstrung Term, Period and Termination, and Strung, Strings: for Solo Cello and a Carpet Bombing raid of electronics. This is the Storm and the Stress of Sturm Unt Drang."

JB – I thought I put that quite well [Both laugh].

[Pause for the music]

But as we talk of this as an 18<sup>th</sup> album – you should bear in mind hat it is not chronologically an 18<sup>th</sup> Album. It is the 18<sup>th</sup> **Blue Cherry** Volume – of a collected pieces - beginning to settle out from this explosion of creativity. But it has now set as an 18<sup>th</sup> album by default. Only at album 28 does an Albums position mean anything chronologically. Then it would mean that it was the first new project - on a kind of newly established horizon – a

bit like the world before it – but not quite. **New Horizon** is the name I chose for the next period of 31 albums.

TH – Looking forward to that.

JB - Just a little way to go yet. I promise !

TM – It's a lot to take in – but it's all on the tape – that's what academics do – we're there to face the first brush of difficulties and understand them.

So – Em. I see from your present discography that there are 42 Em albums – so much to come – but 9 in this early Blue Cherry Group ?

JB – Eight actually – the Electronic music Em to that date in 2007 - compiled to eight albums. With one final album of remainders that didn't really fit anywhere.

Th – Go on –

JB - I'd been having some notable early successes in this area. A Cinderella subject at first but it would grow enormously to become by far the largest area of my work.

The 19<sup>th</sup> album - **Em 1 - 'Canticle for Large Bell'** is a collection of Early studies but contains notably – the 'Canticle for large Bell'. I had the opportunity to record myself actually striking a church bell. The word 'Canticle' is the name of a piece for voices in church music – in this case the Voice -singular - is that of metal. That's a liberty I would often take.

Volume 20 '**Em 2 Basspoint**' - contains my first Huge Piece – the 43 minute 'Basspoint - Rh 76' – imagining a pun with 'Dewpoint'. 'It's My Symphonic length outing for Siouxsie my Black Fender Fretless. Which has proved very popular – coupled here with 'Iotis – Rh 77' which at 17 minutes is a smaller but not insubstantial work also for Bass – together with a couple of other minor pieces.

The 21<sup>st</sup> album volume – or Blue Cherry – '**Em 3 Cleo**' contains the 29 minute Cleo – Rh 87 another epic for Bass and electronics. From now on life would revolve around the studio and the Computer editing desk ! I'm Very fond of this piece – it's a piece that really achieved what I wanted from it and with 'Rhythm to spare' as the song has it. This piece is about Rhythm. Em 3 Cleo is volume 3 of a by now familiar pattern of three volumes of studies – which not so surprisingly - begin all of my Tranches. Showing the amount of work that went into discovering these areas and the potential in them - In my earliest weeks in recording music. Many years – and several root and branch reconsiderations separate these first recordings from their publication- about 10 years later.

Though I didn't realise it at the time what would become '**Em 4 Callisto**' is a step change in my attitude to the use of Em. Marking this as the beginning of my contribution to the genre that most probably brought me into music in the first place – that of so called Berlin School Cosmic or Kosmiche music. In two parts – like the 2 sides of a 70's LP.

TM – Like the Tangerine Dream you spoke of last time ?

JB –. I refer you back to the where I describe how Cosmic and Classical music Timbrely meet for me. And now I'm there in person.



'Em 4 Callisto' is also subtitled '**The Moons of Jupiter 1**' – Containing the first two of four pieces named for the Galilean moons of Jupiter and split between two albums, the other two coming out on Em 8 Europa.

TH – would have made a good double album.

JB – Some people think it was but that's a whole other story !

TH – And the Apollo studio ?

JB – Ohh – good clean fun – a friend's studio in Leicester.

'**Em 5 Wha**' is my first hour long piece, made from the sound of a set of Tubular Bells I have in my studio. I first used them in a set of pieces on MPm 2 'Tubular 1, 2 and 3' - noted for their ear splittingly high range and recording volume. Mind your Ears with those and your sanity with Wha. It was the first one to require a whole File box Disc to itself and here is own Album. I was trying to remember which piece was the actual first hour long piece Wha or Click Track Toe but looking it up Wha is Rh 120 and CTT is Rh140.

TH – Problem solved – the Rh list.

JB – I thought I'd better get it right in the telling. Details like that are important to convey the effect on me of breaking that one hour barrier – not something I set out to do - I even felt afterwards uncomfortable at setting that precedent - if are wasting more peoples time than your own – where do you get off demanding that people sit and listen for so long. I though – having said that - love very long immersive music, always have. I wished to convey my love of it - the Deep listening aesthetic – it's the Cosmic aesthetic ! At 43 minutes I'd thought Basspoint was big – but this was huge – and exciting too. A glance at my future timings you'll see me often Klanging around that time ! As I often say and I said to you – enjoy my music if you have a spare lifetime !

TH - [ laughs knowingly] it's not music in a hurry !

JB – well we're getting near the 'End of the beginning' to paraphrase Churchill.

Though consciously of the vast Deep listening mechanic Wha is not – really – a piece of cosmic music – in the Berlin sense more in the Stockhausen sense of the exploratory. The next Album - my 24<sup>th</sup> by my reckoning – Blue Cherry 24 is '**Em 6 Cepheid**' – and most certainly is of the Berlin Cosmic– two 30 + minute pieces of Cold distant lonely sound - wandering about the stars – Rh 121 & 122. A Cepheid Variable being a distinct type of star used in distance calculations – I believe. Recorded again at the spookily appropriate Apollo Studio in Leicester's Electronic Underground. I love the second piece – Cosmic – oh yes – 'turn off relax and float downstream.'

TH - The Beatles - tomorrow Never Knows -

JB – Exactly –

TH – Man.

JB – Cosmically Serious – but more fun making it than you can shake a stick at.

The next piece though is tough – Emotionally and physically and in the studio making it. **'Em 7 Dark Night of the Soul'** is really just that and super huge at nearly 78 minutes - it is a real experience – not for the faint hearted - the life weary or the hurried. If a CD was a canvass to paint on / in there wouldn't be much empty space leftover. A friend of mine keeps saying I wrote music for horror movies – it must be this she is talking about – I'm not inordinately fond of it – it is a child of it's own time and one of the spaces I explored.

TH – Another Epic !

JB – I'm saving the Big stuff for later [laughs].

The last of this first – Ironically Tranche would be the perfect word – but we have already defined as the special sense of the Em of all my music – it's the Em in album in this first coming together – this– that defined my whole life thereafter. For better or for worse.

So **'Em 8 Europa'** – The Moons of Jupiter Volume 2 – the other two of the Gallelean moons Io and Europa. Io – at just 11 minutes, like the real Io – is the smallest of the group.

TH – Ok – lets take a pause now to hear some Em - what do you suggest ?

JB – From these first 8 of the 40 odd – interesting though some of the cosmic stuff is – in terms of my career – it's minor – so from Blue Cherry it has to be Basspoint – I stuck gold with this – paydirt !

[Long pause for music]

Finally – as a sort of capstone – completing the then – 'complete works to date' document to stand and survey from. There was still– one last Blue cherry to pick. Album 27 – for music - with Rh numbers – acknowledged works - that had slipped between the areas of expressed musical specialty. Grandly a tiny Tranche in itself that only got 1 member.

**Environmental music or Envmm.** I don't normally speak of this as the sixth Tranche – that is my **Collaborative music Cm** – the music from my many collaborations that I shall speak at length about another time – the first of which **'Tetlow and Broadhurst'** is the with major Leicester underground figure Jim Tetlow – and that is a whole other story to say the least. All just about to kick off at this time.

TH - That's a lot of work – given that it is just the foundation

JB - That's my **'Blue cherry' unification** – 27 CD length album Volumes and a precise way of organising them – world ready if the world was ready for me – and the 'blue' print for my future music.

As I have said - from here on – the albums would appear - in one of those Tranches – as the next successive number in that Tranche – but also as the next consecutive Album. The 28<sup>th</sup> album for example was another Dm album – **'Dm 8 - Inventions for Tibetan drum,** Only now, there was is real Chronological order to the publishing order. The albums had another position order as well as their Tranche order – which is 'Another Brick in the Wall' as it wore – for my publishing project itself. Now Called **DCM**. 'Drowningcircle' my Art Publishing House – adding the word 'music' became **'Drowningcircle music - DCM'**. Now albums also had a **DCM number** – there is now one central chronology. The DCM number.

I have now defined a personal Discography. now the albums are also chronological after the blue cherries – something that wasn't really possible before – I just didn't know what I was doing yet – there were no models to follow – I was on my own with this. It's baroque I know but that's the way it happened and its too late to change it now – its all published.

I think it's a very firm foundation – In some ways it gives clarity to the structure because you have to understand it to deal with it – 'show your working' the question said – let people see where your at.

TH –You have Six Discographies – The main DCM one and five subdiscographies one each for the Tranches. And this is the situation with Your Bandcamp pages ?

JB – almost – 40 albums were published first and then I devised a way to see the chronology from those different perspectives and have space to publish all the work. So then you get Six bandcamp pages – five for the Tranches – and the original 'Julian Broadhurst' page where the first uploads stayed but with all the other albums linking into - in their correct DCM Order. Watch it happen and it will all make sense.

TH – Thankyou Julian – So much to digest and go over – with those Bandcamp indices in front of me ! Next time with all this machinery in place – more music- the next chapter a 'New Horizon' – can't wait.

JB - Thankyou Tom – my real pleasure.

14<sup>th</sup> draft : 2 – 9 – 2016.

‘On a New Horizon – the windswept plain of possibility.’ Part 1.

Musicologist Tom Hewitt conducts the third in a series of interviews with Composer – Percussionist – Artist - Julian Broadhurst.

TH – We left you at another seminal moment - after that momentous structuring event - giving rise to the 5 Tranches of research interest – Drum music Dm – Metal Percussion music MPm - Phase music Phm – Music for Strings Electronics and Percussion MSEP and Electronic music Em - with 27 albums between them – as the so described Blue Cherry edition. This is Chapter 1 of your work – presented for the need to document your life. You describe then standing on a New Horizon. – tell me what you can see ?

JB – well - it’s a threshold certainly – I can see for miles. I have learned an enormous amount very fast – I’m upgrading the studio and spending too much time there – far from slowing down this creative explosion is speeding up. I have now given myself a solid foundation – with the over engineered strength to cope with what is coming next. The Tranches direct and channel the work – and the work grows and matures. I imagine I should have had a good long rest between finishing the Blue Cherry Project and launching off into the next work but I don’t remember it. The need to produce music was grinding. I am – or certainly was a workaholic – never happier than when I was working – actually never happier than when I’d finished working.

TH – looking at your output that has to be true !

JB - There is another slight distinction to understand here – Blue Cherry Exists on the ground – the structure I described is written into the structure of my work and has very good reasons for being so defined – I could have called it ‘Lap Dog Shoe snog’ and it would remain unchanged as to what it is – what it did and does for my work. The name as - I explained is simply an extension of an Idea from a dedication to a much loved friend.

However - this name ‘New Horizon’ - it is the name for a concept - a feeling. It’s about ‘how do I feel about myself now’ ? Well actually I felt great – I’m a composer - because that is what I do. And it excites me and challenges me. New Horizon is a precise name for a feeling of new hope. I laid this music down layer after layer - so that every new project just layers on top of the last. However now we also have crucially a Tranche placement for each new album. The first new project – album 28 - DCM 28 - is a Dm project .

TH – Dm 8 ?

JB – It just carries on from Dm 7 – they are consecutive in their Tranche. All 23 Dm albums – at the time of speaking – are consecutive in their Tranche and you can follow that history – or any of the other Tranches for their content histories – or you can follow my music as a whole in the true order of composition - one work after another.

TH – So ‘New Horizon’ is a notion not a event –

JB – Yes - a notion of confidence in my new occupation - but importantly – it marks a break in the running order of my planning – is also the point at which I upgrade from the fairly basic Drum Studio – to the new **Isabel studio** which opened a New horizon for me. Isabel is now the name of the building as well – so what ever’s inside ‘Is Isabel.’

TH – Isabel after ?

JB – Isabel is my favourite female name – if I had a daughter perhaps – but I don't have children.

TH – People often say Works are like children.

JB – in that you fear for them - for their future and survival - and in that they will 'Move away' from your nurturing them – and exist in a sense exterior to you - then yes – but I have no experience for comparison.

TH – A new studio – a new way of understanding your music – a new Horizon – how very apt. Is all the music the - post those first defined albums in this 'New Horizon' ?

JB – 'A Fine question Tom – but no - it is not. Yes we are looking at an uninterrupted sequence of DCM numbers and Tranche numbers – and Rh catalogue numbers – that is all now set in stone – freeing me up to just write and record – and I now know and understand that everything is taken care of from that point of view – to this very day and for the rest of my life.

TH – Then what have we got here why do you say there are 30 'New Horizon' albums ?

JB - Because it is about a limited period of time – a time when everything is literally still new but settling. A point at which to take a confident look forward. Much later on I thought about and talked to friends about - a kind of Golden Period – a golden band across the discography that I was very keen to publish. This has a sharp beginning - with a piece called XAU – always capitalised. An electronic piece – that seemed to mark a whole new area of sophistication. So we have the Distinct Blue cherry group ending at album 27 – DCM 27 - and a distinct period beginning at album 59 – DCM 59. So the Acres of really rewarding project music that falls between these points – albums 28 to 58 - adopt' the name of that feeling - 'New Horizon' – as the next distinct chapter. A name given in retrospect but a distinct period which was and is a 'New Horizon – the windswept Plain of Possibility.'

TH – And the music of this period is qualitatively different ?

JB – Most certainly so – it is easier to hear than to put in words – but yes the possibilities were enormous – mostly in terms of electronics – If Drum Studio was a pub piano then Isabel would be a Concert Grand.

TH – We live in exciting times – let's look at that music !

JB – So the first of the new albums – is a Dm album - from birth as it were, 'born into the Dm Tranche' - with the given definition and history of the Dm Tranche. This is music that knows exactly what it is and what it is for – it knows its place in the world and is freed by that definition.

TH – I like 'freed by that definition' – this is the whole point of your going through that Blue Cherry business – you have given your self the freedom to be a composer – and taken away the need to further define yourself as a composer – except by the music.

JB - Man, that is exactly the distinction between these two periods. It's not just a publishing event or even the technological change -with Isabel that makes that change - it's also that psychological change – I have given myself that freedom – and I ran with it like I've never run before.

And the first place I ran to – was back to my roots with a Dm Project – I had a clear Idea about something I wanted to do – but- several things ended up happening at the same time. In the first week –

TH – Of the New horizon –

JB – And the New Studio –

TH – And – the new studio – I'm picturing it now !

JB - I have a mind full of projects – some take longer than others to produce – now that the production values are richer. After an album gets named and takes up its position - it may have to wait along time to emerge to the public - I'm still just laying stuff down – in an organised way though – like with the pieces of a jigsaw - order is inherent – Yeah ?

TH – I feel like I was there !

JB – well - my 40<sup>th</sup> Birthday was coming up – Isabel was kind of a very expensive present to myself. I felt I really wanted to make a statement – a personal thing you know – I had a delicious idea. I would fill the last days of my 30's with music. Like how much music could I make before I was 40 on March 15<sup>th</sup> 2007. I was 3 days away ! There was paper all over the floor - I was planning this all out. Three pieces – three movements each. I had drums galore – metal objects and resonant curios – I'm a magpie for such things – all on the hard studio floor or suspended from frames. Each night I would sit in the middle of my performance space – and record live for an hour and so – with some stage electronics – maybe studio electronics to come. We have chairs at the end of the room - it's a performance space. I call this 'Live' recording – it is a performance - With Huge drums and amplified metal. Each night a different methodology - each night a different characterisation – a different admix of acoustic and electronics – with more layers to come – ah so many decisions !. Write it down – there isn't time - it's too in the moment – and t's two in the morning !

They are – they will be my '**Birthday Triptych**' Rh 146 – 147 and 149. Bear with me please - it is all coming to a point !

TH – Your patient witness my friend – tell it as it was – unravel this Knot and lets see how it really happened.

JB - Thankyou so much Tom - it's doing me good to put this stuff in order.

TH –I'm led to suspect an Rh148 – it's part of my training !

JB – its part of the story I'm wrapping up –

TH - Why did the Birthday Triptych fail to be DCM 28 ?

JB – were coming to that -

It's the day before my 40<sup>th</sup> Birthday – March 14<sup>th</sup> 07. I drop some drum sticks on the studio floor – I love that clatter. Suddenly - an Idea occurs ! Could I make a piece for Drum Sticks – not for the studio floor or any object I might percuss with them - but rather for the sound of the wood of the sticks. Where I play the sticks for their sound in and of itself. I chose to use the studio floor because that's where they fell – to interest me in the first place. But also because it is dull – thus making the sticks themselves – not their target - the subject of resonance – the musical interest. Something which normally is simply the transmitter of the intention - is now also its own subject – Like Escher's hands drawing themselves. The ultimate in inventive restriction - as a self imposed difficulty. An invention ? Well – not with one movement – my rule. Since this was intended to be the only piece I'd ever make for this instrument - It could be called a sonata. By my own definition - of 'Intending to advance the technique and sound world of an instrument'. However it was out of place – I forgot about it and eventually stuck it on the end of Dm 7 'Trio Tamarind' where there was enough space for it.

That same day – the evening of the 14<sup>th</sup> -

TH – the night before your 40<sup>th</sup> ?

JB – Yes – that night I recorded The Sonata for three drums. The Acoustic one of the three Birthday Pieces – and I was worried by it. It was too much – they were all too much – I wasn't ready to deal with their enormity ! So I shelved them. I went back to my first planned project. A set of Inventions for Tibetan Drum - beginning Rh 150 -and so this became Dm 8 – the 28<sup>th</sup> album. As game changing in its way as the 3<sup>rd</sup>.

TH – Beautiful - let's hear -the Rh 148 –

JB – It's called 'Stick in time' – a double pun on 'Stitch in time' and it being a stick to keep time' – to be 'of time and rhythm.'

[Pause for music]

TH - Now then – album 28 The Inventions for Tibetan drum - the double ended, tapered, long thin drum ?

[Tom picks up album cover]

I'll just read the album cover into my notes–

"It has a bass skin about 12 cm across and a top 'High end' about 8 cm across. The high end, has a loud ping of a rim shot in sharp contrast to the middle, whereas the lower ends seems much more mellow and indistinct. A difficult instrument to create extended and exciting music for ? No, a joy - Subtlety being the word here. The Tibetan Drum being the most seemingly limited in range, so the most interesting in terms of invention."

You are constantly testing yourself -

JB - I used it on Dm 2 - on the first four of the five sonatas - and many times since. But could I sustain a whole Album of inventions for it – 70 minutes - with such a limited range – I would be stretching myself and my audience to the limit ! To me that's a red rag to a bull !

So DCM 28 is '**DM 8 Inventions for Tibetan Drum.**' Can invention take you that far ? I believe this is the evidence that it can. It was an intention of mine to produce Inventions for many different types of solo percussion. Now I had 3 sets. Today I have 7 – adding one for a beautiful Steel Vessel and four more for Djembe.

TH – I've got to hear part of this - what do you suggest ?

JB – I suggest them all – put them to the test – are they musically sustaining to the expert ear ? But let's short cut it and hear no. 1 Rh 150. The sixth piece in this set is a hell of a ride at over 18 minutes – fancy it ? You have to concentrate so hard it is almost numbing.

TH – And were they recorded in the same way as the other inventions ?

JB – One after another yes – I was flying with invention – I couldn't get out of the chair afterwards - as I recall !

TH – I will hear no. 6 – but another day – in my study! I will stop start it – and listen in detail to what you do to invent that motion – for now let's hear no. 1 – we have a long way to go.

JB – It is a good example of the point of the invention as a form – ask Bach. He could do something with anything – and the least he had the more he could do. I need to find this in me – and this is my way of searching for it. You tell me if I found it.

TH - Something difficult to start on the New Horizon ?

[Pause for music]

JB – So Now we can come back to that Something huge we started out with - conceptually and physically – the three enormous pieces that were to celebrate my 40<sup>th</sup> Birthday – **The Birthday Triptych** – as we speak I'm a six months from 50 – can't imagine doing that again – Ha ! I'm too old now – you only get to do this once in a lifetime !

The first of those three pieces is DCM 29 – an Em project '**Em 9 Konzertmusic for Drums Metal and Electronics**'. A cacophony of Drums Electronics and metal – no wonder my hearing is failing now ! I'm not a rock musician – but I might as well have been. As I said - a performance set up in the studio and recorded live with rather unsophisticated stage electronics – some minor studio work and Mastering.

Each piece of this Birthday Triptych is over an hour long and they all have a lot to say about 'Performability' – to be so or to be not – and then to what degree. And they all have 3 movements.

The second of these pieces – DCM 30 is '**Em 10 Doedecal – Konzertelectronics for twelve resonant objects.**' recorded live using 12 assorted Drums and metal objects – not unlike Em 9 but with more metal choices – with live and with studio electronics and in that sense - the resultant work is not intrinsically performable

TH – You spoke of a Konzertmusic for the ear –



JB – As being the only state these works exist in. I think that electronically projected music is perceived to be an experience of music. In the case of music that goes beyond live Performability – is it not still perceivably music ? As for myself I hope it will be !

TH – We must talk in detail about this another time – a book length discussion - it's good that this music throws up these issues.

JB - The last of the three, DCM 31 is '**Dm 9 Sonata for three Drums**' – recorded live as before. It became quite well known – or infernos by being one of the first pieces I published with the help of my long term collaborator Jim Tetlow – on my new DCM label – that would ultimately house all my recordings for sale or to stream.

TH - I'm going to want to hear a short section from each.

JB – Yes - the first few minutes would give you the flavour of them. This isn't music to be in a hurry with ! Here's the first of the three the 'Konzertmusic for drums metal and electronics – Rh 146

[Pause for excerpt]

Now 'Doedecal - Konzertelectronics for 12 resonant objects – Rh 147 -

[Pause for excerpt]

TH - Yes I see - electronic music of quite a different kinds – one in principally performable and the other quite beyond Performability – yet they all started from basically the same acoustic sources.

JB – I rarely used synthetic sound – I'm loathed to – I'm a sound recordist I don't need to – it's inauthentic. With me if you think you can hear a cello – you can – but having just said that when I transform a cello's voice – what is it the voice of ? I have spectrally transformed one instrument to another – but what have I done to authenticity ? [Throws hands in air].

TH - This is research as much as composition.

JB – The object of my search to to find out what music is by dint of what it is not – And – to make a body of music and still the fire inside.

And so to the third – Dm 9 – the 'Sonata for Three Drums Rh 149'

Pause for excerpt]

TH – Dm 9 - Furiously live ! I'll bet you enjoyed doing that –

JB – Exhausting – 3 successive nights – to at least record the preliminaries before I was 40. This piece was ready first – the others took longer and weren't published until a sort of last push to get the whole grid out there last year - on the special Em Grid linking up to my main Bandcamp page – that was from the second movement by the way – it's much faster than the first.

TH – Your dream of drum performance –

JB – Stage work in the sense of being staged – I would like to say of it that it has power and projection.

TH – And Invention - over how long is it – an hour ? And three of them ? A big start to your season two ! [Laughs]. Doesn't take any prisoners this music !

JB – The next two are hard work – then we have at album 34 something almost sensual and another landmark in the form of 'MSEP 4 Particulate' and things change a lot.

TM – Then on please –

JB – DCM Album 32 - another Dm album – 'Dm 10 High Abandon' - made quite well known on twitter by people retweeting it. It has some good work on it.

First – the 'Konzertstück for wood and Metal – Rh 158' –which as its name suggests doesn't belong here at all – it is obviously an MPm piece that got 'placed here' here by mistake. I don't know how – there is overlap between the Tranches but this is just plain in the wrong place. It is furiously live for a kit of metal bars of various lengths and a thick wooden pole about 2 meters long.

The next piece – High Abandon – Rh 169 is the sixth of my 10 drum sonatas – but only subtitled as such. It is played on a quite small and very tight metallic drum – it may have had a metal body as I recall. Followed by my sonata for Solo Drum no. 7 – Rh 160 – subtitled 'Silver' for a quality I thought the sound had. I refer you to my definition of what I call a Sonata and why – from last time. That of it being a display piece for an instrument that advances the technique of sonority and performance. The pieces have consecutive Rh catalogue numbers and so are very close in date. Everything we have talked about so far in this New Horizon is fundamentally extended performance percussion.

TH - I am listening Closely. Please go on –

JB – The next piece is the 9 minute + Voodle – Truly a Drum Study – where that same metallic drum is processed through the cans to ring as a supersoft 'Splosh' -as if I was percussing on a liquid surface ! Not a MPm piece in disguise but true Drum Study –

TH – I want to hear them all but there isn't time ! Not today anyway – I think I'm going to need this spare life time you say I should have !

JB - The last two pieces on this very full album are gems – if I say so myself. They are two of the Three pieces for 'Small Drum Harmonics - nos. 1 & 2 – Rh 186 & 187. No. 3 is on the next Dm album. They showcase literally 'Small Drum harmonics' with that extended technique of French Horn like stopping of the bell I spoke of last time.

TH – Being myself a French Hornist I was excited to hear about that – How long are they ?

JB - Six and four minutes –

TH - Ohh we must have both !

[Pause for music]

TH – Thankyou for those – let's press on now – to album 33. DCM 33 that is

JB – it's identical. Call it what we will it's '**MPm 4 'Sonata for Tuned Metal no. 1'** – I think Sonata for Pitched metal would have been a better choice of name – as it had discernable if indefinite pitch - to my ears though it had tuning – that's why I went with 'Tuned.' It's the first piece on this collection of three new pieces in the MPm Genre The 'Sonata for Tuned Metal no. 1 – Rh 161' in two movements – is officially the first significant outing named for that Genre – but of course it's not actually the first. The 'Konzertstück for wood and metal – Rh 158 - that I placed for some reason on Dm 10 High Abandon predates it. So basically don't believe a word I say – my infallible system is shot full of holes !

TH – It's the general point of the genre that I'm taking – and your need to present them separately that I am most aware of – but I won't believe a word you say from now on [Laughs] – now I have something left to do as a musicologist !!

JB – To whom will it matter ? I'm just adding comments as we go through this stuff.

The second piece on the album is Clockworks – Rh 185 – a 5 min Ligeti inspired confection for tumbling Clock work movements – try and listen to all these off phase timing at once – your brain will pick one to be in phase with – It could be a Phase music experiment but firmly belongs in MPm with its punching metallic texture.

And the third piece – with metallic percussive brutality and yet with moments of subtlety - my 20 minute outing for grinding Industrial Bass harmonics and feedback : Kollapse – Rh 196. Straight from the bench of my 'Metal Shop' – so many different textures. As I said somewhere 'Siouxsie my bass was 'a Metal Cello with the punch of a Fright Train.' This is an outing for real Tuned metal.

TH - For Times sake we'll hear Clockworks – pardon the pun.

[Pause for music]

[making notes] allot to hold on to – To album 34 ?

JB Yes – The first new MSEP outing – '**MSEP 4 Particulate**' and the start of a whole sway of 'Particulate' works 'after the fact of Nono'. Indeed one of the later pieces that descends from these – Curve - is subtitled as such.

Such is the influence of Nono on me at this time that I take a fragment of Nono and bind it to a point where Particulates shatter out – which form part of a DNA cell line from which emerged a compositional study 'Particulate 1 Rh 162 and a rather lovely sister piece 'Particulate 2 Rh 163. These multiple Cell lines I call 'The particulate Partake'. The remaining piece - Particulate 4 – Rh 234 - is much later and was inserted at the end of this Album in a later hunt for space on pre-existing MSEP albums.

TH – Need I ask what happened to Particulate 3 ?

JB – It was never called that - it took the name 'In Particulate – Rh 164' – punning on 'In Particular' and opens as a guest on the next album – '**MSEP 5 Klavierstück 1 – 3.**' The piece 'In Particulate' to call the pun - is a Delicious heavenly outing for high strings and Electronics and shows clearly the origin of the upcoming major work Nonosphere - Rh 165 – which I have to designate as an Electronic piece – simply because a stage performance – even in principle - is out of the question.

I have to interrupt the compilation of album 35 - MSEP 5 because the next piece – Nonosphere - is monumental and moves over to an album of its own - Album 36 - '**Em 11 Nonosphere**' – and because I have declared it an Em piece. So the as yet untitled MSEP 5 awaits a suitable MSEP project. You see the problem with pieces getting longer and longer.

TH - like the chaos before ?

JB – Importantly no – because – these album Volumes – already give music a definite place in a Tranche – hence MSEP 5 awaits an MSEP Project – because the next available piece - Nonosphere has been designated as Em. Everything has a place – sometimes long spaces wait to be filled as was the case on the end of Album 34 -MSEP 4. It wont always be this hard but at least it's clear.

TH - I see the musical sense in that - infact it's also a matter of simple logistics – everything has to efficiently pack into the smallest space.

JB – Beautiful Tom ! I might use that if I may.

TH – Cause you may – it could almost be your own.

JB – But actually if I were to be honest - I'd made a straight jacket for myself – which – wasn't detracting from the music – the music was detracting from me. The music was moving faster than I was in that sense. The system strained. Without the system however I would have "drowned in my own sound" - to quote an early poem - 'We Drowned in our own sound.'

TH – How very appropriate for a Drowningcircle music.

Killing several birds with one stone I think I'd like to hear an long extract from the start of Nonosphere – mindful of its connection to your particulate thread and of it crossing that boundary of in principle Performability from the MSEP to Em.

JB – one could argue that this distinction is very thin here with Particulate –

TH – and I intend to. I shall have to return to these particulate pieces at another time – as one those ever open questions.

[Pause for music]

From a percussionists Ear of Performability to a theorists ear of imperformability.

JB – and that will bend back on itself to a percussionists ear of imperformability later in the Particulate series and controversies for me to face over this MSEP Em distinction. And this throws up a new definition – or rather I need to make one in order to present this – namely that of a **Series**.' It was a common thing for me as an Artist - to have pictures numbering in thematic series. Here it is though emerging in my music. This is why I can't complete album collections at the Tranche or Genre level – because there is a Series forming which belong together but pass between the defining distinctions of the Tranche or Genre.

There are six pieces in this - **The Nono Series** – Particulate 1 & 2 – Rh 162 & 163 : In Particulate - Rh 164 : Nonosphere – Rh 165 : Trio e Nono – Rh 166 and Nonoquinox – Rh 167 – pronounced No –no[c] quinnox. Over 3 hours of music between them – and about a million problems for me as a producer. I didn't know what to classify them as and so I didn't know where to place them. Encountering new phenomena like this means old definitions have to stretch. Thematically related – it is a series that could have been a box set on its own- as a series of 6. It can't though - with my constraint of calling everything a spider or a fly !

TM – Ha !

JB - There are other - later Particulate pieces - and the biggest and sparest one of all – is 'Luigi' – way down the line. This though is the Nono Series – not numbered as such but recognisable now - as such. A Later series - the Berio series - Beri-om or **Beriom** – are so numbered and that has 12 pieces - 7 hours of music.

TH – so how does that all pan out on the ground ? You have The album Particulate left a bit short because 'In Particulate' wouldn't fit – that is MSEP 4 - and MSEP 5 is now a bit short - because the next piece - Nonosphere is huge and has become an Em Piece ?

JB – Well the next two pieces in that Nono Series – Trio e Nono and Nonoquinox I was at a loss with. Neither fish nor foul. I walked away from them. For now.

TH – Lets talk about Nonosphere.

JB – I posted it up in my Facebook group IF-DCM The 'DCM international Forum for contemporary music' – a private group for international Contemporary professionals – I post my own music now and then – it was very well received. One man was very interested in it – Iranian Professor of composition - Amir Magyars Tafreshipour. I replied to his request for information –

“Thankyou Amir – the Isabel Ensemble are/ is my Studio desk – Isabel being my studio – it being as I say an Electronic work – in an evolution of works called Particulate – 3 before and a couple afterwards. This is by far the longest – built from layers of processed modules. A long and tedious project about 10 years ago. One of the first albums I released – it has an exciting, dynamic and an almost orchestral sound. Which is why I quipped that it was the Isabel Ensemble”.

Amir replies - “Well done and thanks for posting it. Would you think that this could be performed with an Acoustic ensemble or Orchestra ? It reminded me of a new piece by Christopher Fox”

To which I replied “One could approximate it I suppose – but it is itself - not intended to be an approximation of such a performance. It is a work for the private ear – to be enjoyed in the comfort of one's own home – as one would a favourite album. Besides I couldn't call on such forces. Much of my work is Electroacoustic or Electronic – with a large number of acoustic Percussion works.”

His final comment is “Lovely – “Beautiful atmosphere. I think I heard much of it and kept imagining it as orchestral acoustic.”

I describe the work myself as 'A penetrating Cloud of unbearable sharps, a rush of glass hails into one helplessly caught. Written as a homage to the Great master Luigi Nono'

As I say it was one of the first albums I made publicly available when I started publishing with Bandcamp some years later.

TH – I have publicly said I can't listen to this with the lights off !

JB – I think I felt the same way about the next two Particulate pieces – I just had to leave them. So I turn away - to a completely different and unrelated experimental Piece – itself the first of several of its type. And we are right back in the Cosmic genre with another enormous work.

An exciting Idea presented itself – and I just let it roll over me. Album 37 – rolls like an ocean of turbulence below – **Em 12 Movement about a point [Saturnian system]** – changing in minute ways over an eternity almost. The album text reads -

"An album of Cosmic - sub Classical - Subliminal music - With the Double title 'Movement About a Point [Saturnian System].' Total Emersion Deep Listening - with a double pun. It's a movement around [about] a point- ie Circulation - and it is 'A Movement' in the musical sense - about ie concerned with - a point - and the circulation around it. In the words of schooled hippidom 'Can you Dig' ?This is Stockhausen meets Earliest Era Berlin School Tangerine Dream - Except that I only ever use Acoustic Sources - Instrumental and environmental. I made three of these pieces - each from a different methodology. I deliberately don't keep a studio Diary. I will go along similar veins if promising in results - but evolution is the watchword - straight repetition is waste of time. Experimental music is a branch of science !

Take long Deep listen in a Darkened room - lay back and go with it."

I had that Idea for the cover of a planetary crescent and like with Nonosphere - Jim Tetlow's expert hands created exactly what I was looking for. They wouldn't be the same without his stunning covers !

TH – So – god help us this is the start of another series ?

**JB - The Circulation Triptych –**

TH – If we have to count the Birthday Triptych as a series now by your own definition – this is the third. New horizon is full of these it seems.

JB - There are lots of numbered sets in the Blue Cherry albums also - but nothing on this scale. I don't want to start numbering them – they are just a landscape feature. But they have names and are important in that respect. As landscape features you need to understand them to navigate the music.

TH – we are telling the whole tale of how things seemed to fall over themselves in this sort overflowing intensity.

JB - Coming to a point of resolution. We have one more distraction.

April 1<sup>st</sup> 2007 – I'm sitting in the studio as I do day after day after day – I pick up a huge drum. I always play with them under arm – no matter how big they are - most people don't do this – but I always do. I know the value and reach of every point on a skin – from this position. I've taught others to play this way.

I say into the tape - 'First of April – Two thousand and seven' and I'm off. By a series of variations and changes - I'm off for 31 minutes. You have to listen very carefully and follow the changes. This is April awaken – Rh 170. Bear that number in mind.

TH – It has significance then ?

JB – It does for the arc of the broad story were telling.

And so the next album out – the 38<sup>th</sup> – is **Dm 11 April Awaken** - filled up presently with all kinds outdoor Drum studies. Keep that number 170 in mind and I'll read the album notes – there're very good – wish they all were.

TH – Will do.

JB – "April Awaken - Dm 11. The 6th volume of Drum Studies.

A Very 'Outdoor' album, this and the next, 'Underdrum' Dm 12 - which might be 'April Awaken two' except that I always [or for the most part] name Albums after works on them. The eponymous track here, Rh 170 April Awaken was my longest Drum Work to that date. At the begging I can be heard speaking to the microphone '1st of April - 2007,' dating the recording, but the intension of the piece was to create a waking of April, so I always left it in.

Clap Tap - Rh 174. Doing something I once did a lot of, stealing a moment of percussion, in an unlikely place - an empty room in a hospital - a few moments before someone came in, how long had I got to frame a rhythm ? Playing my hands against the acoustics of the room.

For the Birds - Rh 175. An outdoor piece - another moment stolen from a natural acoustic - this time the goose calls of Carsington Water's Geese and a lonely bench on the shore. The title Clap Tap begs you to say clap trap - whereas 'For the Birds' is that expression of a thrown away moment - where I 'sang' for [and with] the birds.

Again and for the Birds - Rh 176. Developed from a second recording a moment or so after 'For the Birds'.

Cromford Canal Side - Rh 180. Recorded live at the Cromford Canal side Gathering, Derbyshire 2007

Doublebeat - Rh 184. A Studio Drum Study.

Soft Study - Rh 188. A Studio Drum Study - and it's anything but soft ! Related in intension to the Album 'Very Quiet music' - which is for the most part - but is not always quiet.

Tonnel - Rh 193. Spelt Deliberately with an 'O' - It was recorded in the canal tunnel a mile or so down from Cromford Wharf, scene of the 'Canal Side Gathering [and Rh 180 a week or so before], in early 2007. We carried Drums and Microphones down the wickedly narrow

towpath a mile or so, and back.

Tunnelling music - Rh 194. After Tonnel, a title with the implication of action, like that of a Picture of mine, 'Monogram to see round corners' - Double pun on round. Lovely Pieces these two, beautiful acoustics”.

One comment -

'Very impressive' - Neil March - British Contemporary Composer. April 8th 2015”

Now nice of Neil to say that.

TH – Yes – but I don't think I know him.

Now Rh - Rh 170 ?

JB – April awaken – well the next three pieces I record Rh 171 – 173 - are the first Three Klaviastuck – the name shamelessly after Stockhausen. These will complete MSEP 5 – and accompany 'In Particulate – Rh 164' naming it **MSEP 5 Klaviastuck 1 – 3**.

TH - Another series – on one album ?

JB – Yes but there is a Klaviastuck 4 to come. The last two Particulate pieces won't find a home till album 43 -MSEP 7.

It's a long back story I know but I want you to be aware of the crosscurrents that these series are throwing up.

TH - It is valid and telling that it does – it makes sense of the complexity – when you take it on a piece by piece basis. When you think you are in effect compiling your own 'Complete works' as it were – wanting to see it done and indeed getting it done in your own lifetime. So in what order would you compile it – completely as it comes – or in a thematic manner – which makes more sense to the listener. These crosscurrents as you say add a layer of difficulty - but I would say a layer of interest.

Let's break for some more music – we've quite some catching up to do. Something I think – from – April Awaken – and - a Klaviastuck !

JB - Tunnelling music – From April Awaken - Tonnel is good too ?

TH – how long are they ?

JB – the matter of a few minutes each.

TH – We'll have them both.

[Pause for music]

And a Klaviastuck ?



JB - An extract from no. 1

[Pause for music]

TH – good – colourful. Like prepared piano ?

JB – Very like.

TH – Electronic piano ?

JB – Piano Electronics - all my sources are acoustic.

TH - To Album 39 then.

JB – Yes - DCM 39 – ‘**Em 13 Isospin**’ – the second piece in the series Circulation Triptych – which follows on in the vein of Em 12 ‘Movement about a point [Saturnian system].’ ‘ISOSPIN’ - is a further exploration of rotary motion but on an altogether more abstract level. This time, after the physical concept of Isospin - a Quantum component possessed by subatomic Particles. In two symmetrical parts, this piece is best known for the Curve of its "Energy fall - Energy rise" between the parts. That descriptive concept is definitely a nod to Klaus Schulze in his 1971 album 'Irrlicht' - 'Energy Rise Energy fall'. Except it's the other way around in my case - as the Energy falls and then rises - graphically, in a semicircle. Even more penetrating and unsettling – than Movement about a point. It was a tough one and years passed before I was really happy with it.

TH – I think I'll save that for some weekend listening –

JB – Over Sunday lunch perhaps ! I like the second – longer part more than the first – when it's reborn – it has something new.

TH – I'm sold – let's hear a short excerpt from the start of Part two.

[Pause for music]

Album 40 ?

JB – A sister Album to MSEP 2 Countout – compare the colour saturations on the covers – This is ‘**MSEP 6 Counting**.’ Gloriously fragmenting the Countout cello gripe into a million flying fragments rolling through them – I absolutely love this – serious waters for me now. The Headlining pieces of the album - Counting 1 and the shorter counting 2 are quite well known – especially the second piece – which was selected by Demerara records – a London classical start up I was in on the ground floor of – run by composer Neil March infact – to feature on its first release – the Triple album – ‘This is the future calling’. For which Jim Tetlow and I designed a beautiful cover – and company logos et al. Counting opens with an experimental Flute piece played by a darling young woman – we'll call her J. It rounds off with another Nono-Particulate piece Nom e Nono – Rh 239 - from a future time - that was looking for an MSEP home. Complex – Percussive and difficult MSEP.

I strongly recommend that we hear Counting 2 – Rh 192.

TH – I strongly concur.

[Pause for music]

JB – Signature music – a signature album – Don't miss Nom e Nono if you ever have time.

TH - In that spare lifetime ?

JB - The Isabel Ensemble at their best.

TH – I will need it.

JB – You certainly will need it – were not half way through our target journey to cross the new horizon.

TH – Where are we - at 40 ?

JB – 41 now.

TH – Let's get half way – half way this session and finish in the next.

So what have we at 41 ?

JB – '**Em 14 Directions**' – the 3<sup>rd</sup> part of the Circulation Triptych – Rh 195. It was created in seven parts and is described as being in seven parts. More like navigation points at places of notable change. The CD edition I prepared for it has these as rehearsal points and they're important – as navigation or to borrow a word from Stockhausen – 'Regions'. An internal division – above which the music is seamless. Unfortunately the distributors platform doesn't admit of internal divisions. A division is a new track and it inserts silence automatically. So the streaming version had to proceed without its Seven parts. I've had to do this many times.

It's a good bold piece but this is not Cosmic – not intimal – like the other two - but industrial. Electro metalique Harmonics built from Phase layers with a longterm progress – the musical logic if you will. I term this '**Systematic music**' - for the system process that makes it an inevitable result - give or take. Fugue is in that sense 'Systematic – 'Formal – might be another name. A very successful experiment - in its way. 'Em 5 Wha' - was a very similarly Systematic piece. XAU – a much later piece – can be called an Heir to it. Directions has a long flat quiet region as the 'Seventh' region.

'A Movement is accomplished in Six stages and the seventh brings return' – Syd Barrett.

TH – From Chapter 24 – Piper at the gates of dawn.

JB – Ahhhh – you have it !

TH – "A movement is accomplished in six stages  
And the seventh brings return.

The seven is the number of the young light  
It forms when darkness is increased by one".

JB – Wow Tom – yes !

TH – the lyric is from a translation of the I Ching

JB - Nooh ! Really ? I wonder if John Cage knew that ?

TH – Don't know - but it sounds like he would have enjoyed 'Directions' – we must hear some !

[Pause for music]

JB – Two albums to go before a real landmark – with Em 16 Moment of a Butterfly – there is music before it and music after it – we'll start with that next time.

TH – This windswept plain wasn't really a plain at all – rather a higher range of mountains – crossing it is hard work. What an incredible body of work and barely a year out !

JB – You must also know that I spent years working on these pieces – some even to this year –

TH – that's ten years to 2016. That makes more sense – still not a bad haul for 10 years !

JB - It took – it takes a lot of getting used to – sometimes I still feel I made it all up. This exercise is helping to harden it up for me – just like designing the album covers helped in that way – as did naming the Albums before that. Every reification seem still in need of proof – of Validation. That's why I worked so much with collaborators – It just helped me believe it.

TH – And am I real ?

JB – Your just a beautiful dream Tom – every proto composers dream – a musicologist. Someone who gives a damn about your music. Another step to becoming fully real.

TH – someone who has a real need to go home at some point !

JB – two to go – and they are not so very hard.

TH – not 'Childishly Easy' to borrow a phrase I read from you.

JB – Borrowed myself from my old Logic lecturer at Warwick.

And the Album – 42 – contains the mini series '**The Philosophical Elements**' – It would have made a good title for the album – but as I've explained elsewhere – I like to name albums after a piece on them. A classical album is nearly always named for a work it contains – it doesn't make sense not to. The classical Album is just a vessel for the music it contains and not a thing in itself like in popular music – and that was my model. . So it became '**Em 15 Earthfire**' – after one of the three pieces on it.

TH - The philosophical Elements could have been a sub title – like 'The Moons of Jupiter.'

JB- it still could – it's my label.

TH – go on.

JB – Three pieces on it - placed of course - as I always try to in Rh order. Who wants an arty track order when there is a natural order – that is fundamental to your work ? I hate it when producers or artists don't do that – you get a set of pieces – no. 5 – no, 8 – no. 2 ?? You can't beat the successive order.

TH – Though even that may just be an order the publisher put them in and nothing to do with the composer.

JB – well in this case I am the Composer and the publisher and that is the way I feel it should be.

TH – Order at the service of art ?

JB – Order – and the Order - is Art.

TH – I like that –

JB – Yes – I do !

So – First off a piece more in common with the Circulation pieces – A Sharp Sound Underfoot – Rh 189 – was a sort of study piece for Directions - and I liked it – but it didn't have a home on Em 14 – so it drops in here - opening an Em 15 – and gave a home for this next Project - the Philosophical Elements. The first of which is 'The Fluid Elements – Rh 197 - Air and Water. Its companion - piece is Earthfire Rh 198 – literally Earth and Fire.

TH – Let's pause to hear a little bit of - what do you suggest ?

JB - Fluid Elements is very dynamic – Earthfire is more static to my ear and dry – not in the technical recording sense but just to my ears – dry heat - as I imagine it.

TH – Fluid Elements hen - I'll hear them both at some point.

[Pause for music]

And finally to our last album of the afternoon – and we have looked hard at them.

JB – Yes - lastly - before 'Moment of a butterfly sweeps all before it – I have an old loose end to tie up – the remaining parts of The Nono series - collected on album 43 - **'MSEP 7 Nonoquinox.'**

TH – One thing puzzles – why do you insist on telling people how to pronounce it in that unusual way – surely it is part of a Nono series ?

JB – A – it gives it a strength in pronunciation - my way I feel – that suits my conception of the music's strength – and B – maybe I've moved so far from Nono ?

TH – To the music then.

JB - Two - long - severe pieces for Strings and Electronics - it took a long time to get these two - just so. The 37 minute electro chamber piece 'Trio e Nono – Rh 166' and the 33 minute piece for larger forces 'Nono[c]quinox – Rh 167' – at last – completes the Arc of the

Nono Series – which has kind of followed us all the way - dictating the shape and placing of many of the albums we've looked at today.

TH – Julian Broadhurst – Thankyou very much – we will continue next time at another seminal point – the moment of – the 'Moment of a butterfly.'

Draft 18 - 23.9.2016

'On a New Horizon – the windswept plain of possibility.' Part 2.

Musicologist Tom Hewitt conducts the fourth in a series of interviews with Composer – Percussionist – Artist - Julian Broadhurst.

TH – We rejoin you at about the half way point across your 'New Horizon' - in the early summer of that most seminal of years - 2007. We have seen the laying out of all that classifying machinery of numbers that stratify your work and define into existence the different genre areas of your work. We began looking at all this in practice and have come through at least the birth pains of 43 volumes of a life's work. Would it be true to say that the story we're unfolding is one of how this music came to be initially - but were summing over the evolving journey some of them will have taken to reach the surface of public identity ?

JB – It is certainly right to say that some 'completed' works will have had several revisions before being finally posted up to the DCM grid layout on Bandcamp – filling in a hole left for it as a yet unpublished volume - awaiting my final seal of approval. It could have happened principally on three occasions - when I took a root and branch look at all my music in turn – from Dm 1 in Tranche order – through all the music to Em 40 whatever. Adding an 'f' to the master tape names of any work I changed to keep track of that change. The 'f' stood for 'final' edition. I Wish ! The next year I did the whole damned thing again with the 'f2' - it was a long process of decisions and changing ones mind – of finding minute timing errors and correcting them - and listening – listening - Listening – for weeks at a time. The final occasion was really recently when I added the final albums to the Bandcamp grid. I suppose the now complete grid is the 'f3' edition of the work in all but name.

The music hasn't changed in its description – its content - its purpose or it's intention. It's just that it all had to mature – EQ values had to be looked at - fadeout profiles had to thought through – I had to give the music the benefit of my experience as time went on. Some pieces sailed through because they were spot on from day one – others on reflection needed more thought. As I would say they all had to become 'just so'. Some pieces have difficult births but I rarely abandon pieces - I can walk away from them – but once I've established them I will complete them – because they have become a part of what I needed to do.

TH – So we are seeing the journey of your work – of the areas you are carving out and the machinations of that – but we may understand that music you describe as 'needing to be done' – to be the music you felt called to achieve.

JB – Certainly. Infact one of the reasons for my putting off this part of these interviews was that even now I am still tinkering with apparently published material. I don't do it often but occasionally I have to - if I find something wrong. My Web hosts 'Bandcamp' were revising the way you uploaded albums to grids – meaning the way I was uploading material – filling holes one by one with the completed volumes in no particular order – just when time and tide took me – would soon no longer be possible. I had to get a real move on – taking this last look at everything. The amount of work I still had to do I thought I'd never finish – 120 albums – six separate grids. Of course I did finish it – but the odd album comes up as lacking still – I'm amazed how much is finished. The floors are in the doors are in – the roof

et al but with 120+ complex rooms there is always something left to do. Finishing it was once a pipe dream.

TH – you spoke on the phone of a remastering a project ?

JB – Yes – preparing my self for your visit – making notes for myself I began to have serious doubts about Album 47 – ‘Uranic phase’. As I say I seldom abandon a project – but now of course with projects potentially in the public eye it’s imperative to get on and solve the problems. In this case over production along time ago – that become a neglected piece and got overlooked. So I open up the archive to find the oldest versions of it – then carefully strip back with the benefit of now a decade of studio experience to find and improve the piece I had originally recorded – and I was delighted by what I found - publishing it now as the 2016 B Version,

TH – So is there a Viable A version ?

JB – I doubt it’s Viable. It exists but It is insufficient to my ear. Well come back to it in context.

TH – A perfect example of your working methods. Mindful of which – I think we are ready to resume this fascinating journey. We rested at album 43 – please - let us talk about album 44 – ‘Moment of a Butterfly’.

JB – ‘**Em 16 - Moment of a Butterfly**’. Two closely related pieces - Moment of a Butterfly - Rh 201 and ‘Moment and a Butterfly – Rh 202.’ Using the word ‘moment’ here in two quite different senses. I give a description here that is basically the album text – since it was very to the point.

“In the first piece – ‘Moment of a butterfly – Rh 201’ the ‘moment’ in question is in the sense of a physical quantity, as there are said to be moments of inertia. As a unit measurement of something tangible, quite what in this analogy a Moment of a Butterfly could be I can’t say, but it is would be a linguistic delight to try and do so. Butterflies have a long history in my Art, in Pictures and poetry, I used to describe the creative process as being not simply making a silk purse out of a sow’s ear, as the old maxim forbids, but to make a butterfly out of one - as I propose, then presumably, to ‘Take’ the Moment’ of it. I took this piece to Huddersfield University’s Music Dept. on a visit to meet the then Head of Contemporary music there - Dr James Saunders, which meeting would prove immensely important to me. Firstly he assured me ‘Moment’ was a good piece, secondly he asked me to take part in the Improvisation group they were holding that day. This I was allowed to record, and it became the Album the **‘Huddersfield Impromptu - Three Undirected Pieces’** - which is free to download on my Master Grid ‘[julianbroadhurst.bandcamp.com](http://julianbroadhurst.bandcamp.com)’. This is not an album of mine – it is an album I was on – I just happened to record it and preserve it – making it freely available to all who took part or wanted it.

To continue with Em 16 - ‘Moment and a Butterfly - Rh 202’ - conspires on the word ‘moment’ again, but this time with a temporal implication, a moment in or from time, with the butterfly, captured as is it were, frozen in a moment like perhaps the frame of a film - and the duration of that frame’s exposure is that moment”.

I quote three endorsements of the album on its cover from people I both love and admire.

”Distinguished French Composer, The Great Frederick Kojevnikov said of this Album that

"Julian Broadhurst writes a music which hovers out of time and which altogether sounds like time itself."

Dear Frederick – he died in Paris this spring of 2016.

"British Contemporary Composer Mark Yeats said that its - "a haunting, slowly drifting musical mobile - a soft sound mass revealing different perspectives as its rotations gently unfold" - 18th October 2015".

What a beautiful description – I don't think anyone could sum it up better – Beautiful Guy. You should quote him. Lastly -

"American Composer Brandan Nelson said "such mesmerizing music...truly put me in another "place. You have a rare gift" – and he has a rare generosity.

I'll introduce you to them – I can't with dear Frederick but his music remains. He changed his name from Frederick Martin – to something from his family's past. He was once a darling of the French IRCAM establishment but fell out with them badly.

As I have fallen out with collaborators - daggers drawn - in a way that only musicians can.

'My first 'public act as a composer' – I grandly said to myself – comparing it to the events I undertook as an Artist – like the Altar piece for Liverpool Met. Cathedral. It felt that good. and I returned several times.

TH – A hell of a start to this new life as a composer – this is another literally seminal point – an over used word but it means something here. Let's pause now to hear some of the 'Moment of a Butterfly the Rh 201' –

[Pause for music]

Did you say the three pieces from Huddersfield was a whole album – I am curious ?

JB - They are not long – it's more an EP than an LP !

TH – Just to be contrary then – let's hear no. 1 –

[Pause for music]

Yes indeed – a Little piece saved from the either.

Album 45 –

JB – Well – before we get there - 'a little turbulence must enter every oeuvre'. Mine being no exception – more over the very rule of it. Whilst I was thinking towards what would become 'Very Quiet Music' - I was also working on a Bass session with bowed 'Fender Siouxsie Black Bass' – kind of atmospherics - kind of cosmic – MSEP possibly Em – anyway – Rh 203 for Fender Bass and Electronics it will come back to us soon as album 47.

TH – meet you there.



JB - For now - for clarities sake – Album 44 contains the pieces Rh 201 and 202 – Rh 203 will become album 47 – the next album up – number 45 – is track/session Rh 204. Yeah ?

TH – The counting mind of the composer –

JB – Ok - Album 45 - '**MSEP 8 Very Quiet music**' - If you will forgive me I will read from the album again – it's not that I'm being lazy – rather that I'm being precise. The best of these are in some sense analogous to definitions – honed to be concisely what I want to say about the album. Here goes -

"At a time of my fathers illness he became very sensitive to noise, I started thinking about very quiet things. I had been making allot of very loud music - so tried to imagine a music that for the most part would be as quiet as possible, a Very Quiet Music. Simply turning the volume down on any piece of music will quieten it, but I wanted a performance, as pianissimo as possible, a 'Very Quiet music.' Bernhard Gunter had managed the almost imperceptible, but I didn't just want to do that. I wanted a living music, that for the most part had to keep it's quiet. As it turned out, this music had such passion that It was barely able to keep it's quiet, and sometimes it would just have to burst out of it's bounds with the sheer passion of being that music. Recorded live in the 'Large space' at Isabel, without an invited audience, as even a dropped pin could have ruined the recording. Hence this is 'Concert music for Private Performance', as a recording, where you have carpets to hush pins you may drop".

I have to say - I love that description – it fills me with the joy I felt at the time. I had been introduced to the maverick German Composer Bernhard Gunter's music by James Saunders. I even wrote to him – but he wasn't generous in his reply and I didn't write again – regretting infact that I had in the first place. His notion of incredibly quiet music chimed in with thoughts I'd had visiting my Father – but as I said a music not dead but alive - even to the point of suddenly bursting out ! I had to warn people not to turn this piece up to hear the detail – because of the huge dynamic range ! On headphones it might damage your hearing if you did.

TH – I love the impishly brazen title.

JB – The cover is by Jim Tetlow - quite sometime later when I came around to publishing a first few things. Feverishly bland I called it – exactly what the album isn't – and there's the conceit ! This is midsummer 2007 a year into 'this time of music.' I had written that telling phrase after the last entry in my Artists 'Illustrated Curriculum Vitae' – "Now in a time of music."

TH – "Now in a Time of music" ! How Apt.

JB – This pause of ours - at a halfway point across "that rolling plain" as you called it - was also apt - in that at about this time I met Jim Tetlow - Graphic Artist and most importantly musician – who would change my life completely. Our work together is quite literally another dialogue. Seventeen albums together as 'Tetlow and Broadhurst' - a whole other discovery of music - that in its way led directly to nearly every collaboration I subsequently made. Directly to Dave Dhonau and D'juil - and If I hadn't then been running away from a 'Certain person' - and their Leicester Underground – I wouldn't have looked so hard into finding International Contacts like Markus Wenninger et al. My label - DCM would not have extended in 2013 into a Facebook group for Contemporary Composers - and given me the ambition that introduced me to the crowned heads of British Contemporary music - who

have now accepted me as an oddfellow amongst them. It all begins here in my second summer in music. That's about nine whole other stories !

TH – I might need more than just the one spare lifetime.

JB - On this point – I'll just read on from the album cover a few words wonderful people have said about Very Quiet music The Great Frederick Kojevnikov again –

'I could have told who wrote this music from second 1 - Julian, your spirit is clearly there in this piece' - Frederick Kojevnikov - French Contemporary Composer - June 2015.

He was a very special man – and so is British composer Martin Gaughan -

'Really enjoyed listening - such amazing sounds' - Martin Gaughan - British Contemporary Composer - June 2015.

Just the other day I got him some work writing for Markus Wenninger – it's a family of music – a context for mine and I'm in Martins context now – and were Both in Markus' –

TH – A family of music – I like that.

JB - -just to finish - unusually I added a phrase of my own 'I stand by this as a piece of conceptual painting' - Julian Broadhurst - June 2015.

Some words – that such people say of you – they count so much in building you – they are foundations you can stand on – secure footings that people have given you.

Facebook destroyed my account and with it hundreds of letters between Frederick and I – I have so few personal words left from him. It was the cruellest of blows. We'll speak about all that another time – now is not the right time as I am celebrating these words about my music and that is how I want to feel.

TH – most certainly – I can see why they mean so much to you. I can also see that any excerpt would not really give a sufficient flavour of 'Very Quite music' – it would be a one stop commitment – even so – let's just hear the opening minutes – I can hear it through in my own good time – we'll just have the start – I'm too curious not to.

[Pause for music]

JB- Let's go now to album 46 –

Testing new ground and a testing new Series - **Stare Back** – and the first new project for Phase music - '**Phm 6 Stare Back 1 – 3.**' Quoting the album again –

"Three related, characteristically difficult, percussive, rhythmic evolutions, somewhat in the manner of American Minimalism.

Like the magician brewing broth, I chant the lines, on Drums and such and the stir it well together - each time and let it swirl and then, cut moments from a line to torment the swirl - to heat up the ferocity, to a precision of tumbling quite beyond human performance - just to probe the immensity. This is what my phase studio was all about - witchcraft.

This sixth Phase music Album was the first outing for a Phm project after 'The primary Five - those evolutionary 'Phm Albums', I'd grouped together as a set, in the first organisation of my music."

That I now call my Blue Cherry group - that is

TH – well if that be the case – I have little choice but to hear no. 1

JB – A bewilderingly simple set of motives phase eventually into a bewilderingly unpredictable turbulence. Be attentive to it - it becomes very complex in a deceptively simple way. No. 1 is Rh 205 – nos. 2 and 3 are respectively Rh 210 and 211 and don't arrive until a session between Albums 48 'Ritual' - and 49 'Sonata Bass'. In those later 'Stare Back' sessions – I recorded 3 pieces - 'Stare Back two and three' and 'Rh 212 – 'Three Quarks for Mr Mark' – in effect Stare Back 4. Built along the same lines but I designated it a Dm piece. So the Crosscurrents again – like with the Nono Series they blew the Tranche or genre definitions off course.

TH – That title 'Three quarks' – isn't that where we get the name for that Sub – Sub atomic particle from ?

JB – Yes - it's from James Joyce's Finnegans Wake – and it's a miss quote – it should be - 'Three Qarks for Muster Mark.' I get really pissed when American physicists call them 'Querks' – it rhymes with Mark on that line and Bark on the next giving no doubt as to an intended pronumciation.

TH – indeed not !

JB - Let's Hear part of Stare Back 2

[Pause for music]

They get faster – wilder – and more insistent.

TH – Are these four pieces the extent of the series ?

JB – Actually no – there are 5. later - on the Album 'Turing' – which curiously isn't named directly after a work on it but only indirectly after what is in effect Stare Back 5 - 'Turing Boogie Woogie - Rh 238.' This is coupled appropriately enough with 'Particulate 5 – Rh 237. You couldn't make it up Could you ? That's album 56 - right by the end of our journey. Incidentally 'Nom e Nono – Rh 239' was my last work of 2007.

TH – What a year that was !

JB – I'm glad I wont do that again ! The pieces haven't all fallen back to earth yet.

TH – Yes – the remastering you spoke of – in the analogy of the building – it's still settling.

Those 'Particulates'- all for later then – but for now ?

JB – Album 47 – the promised bowed Bass set. I called the 2014 release of Rh 203 - itself a 2009 revision of this 2007 recording – 'sourly sublime'. I spoke of its 'bleary poisons' - I said it was a spare, defuse work – mudding the waters at a stroke. Well carefully teasing back those years of not knowing what to do with this work – neglect and frankly bad

judgment on my part in those subsequent work wide revisions – reveals it to be nothing of the kind. It is full of bright singing tone and harmonics. Far from ushering people swiftly past it I've revealed an hour of music I can be proud of. Music new to me, in my memory that is - I strongly recommend it now. It is an outing for Bowed Bass and metal Percussion from struck harmonics on the bass strings.

**'MSEP 9 Uranic Phase'** – Storms and atmospherics.

TH – Oh bring it on then !

JB – it is quite unlike its sister piece 'Sonata Bass' - also for bowed bass - which is much more about the bending of pitch – glissando - the way only a fretless instrument can – a Salvador Dali softness of world forms. Uranic Phase on the other hand has much more definition of pitch and a rarefied 'Cosmic' tonality if then set back in the mix and rubbed into the textures. Sonata bass is almost a stage work – a sonata after all. Uranic Phase does stretch the point of performance in the notion of Electroacoustics.

[Pause for music]

TH - So why is this MSEP and not Em it is obviously electronic music ?

JB – I know this can be a difficult area for me and that most of these distinctions can seem to pull in the same direction but there is a good reason for it here. I felt that despite a high level of production away from the pure acoustic – the acoustic of performance was still there in the metallic punctuation I provide through it and you can make out the action of the bow on the string. It is a performance advanced by electronics rather than an Electronic piece - there is nothing systematic about this – therefore I'd still want to call this an Electroacoustic piece. Also the bass is a string instrument. There is often an overlap between these genre definitions and this is a case in point.

TH – As you have made clear - these tools are just guide lines in a live experimental practice - they cannot be allowed to interfere with the outcomes of the music they host. Like grid lines on a map they affect our thought about the land depicted but not the land itself.

JB – Beautiful analogy Tom – but don't lean too hard on it.

Now to some truly electronic material where I find music electronically from concrete sources in **'Em 17 Ritual'** – album 48 – two very different pieces – united not by methodology or just by being consecutive projects - but by their intention to tease music out of effectively field recordings.

Spooky things afoot – I am invited to a Witches Ceremony which I record – it was fascinating to watch but unpromising material to work with – heaven knows as music ! This was a problem to relish – but it was difficult and took several years to get right – that's why Ritual wasn't released until 2015. The thing I loved about it was that it was a real witches ceremony. I'd got the second piece right straight off - but I just couldn't see my way with Ritual. Then I had this Vision - of candle light flickering into dark corners intermittently. Also I remembered an old poem – I committed very few poems of mine to memory but this one I did- it's called something like 'A far cry candle light' –

"I reach to touch

the shadows on my wall  
but moves the wind my candles mind  
and I awake.”

TH – what year would that be ?

JB – 1986 – think – from ‘Oddfellows’ – the second published book – but that is a whole other story. I refer you back to the first interview and my wilderness.

Anyway - I’ve always had this thing about witches – went out with one once and I had many friends who were witches so I attended quite a number of ceremonies. They don’t have green faces and wear pointy hats – most of them anyway – but they do have woodland ceremonies – and feasts and firelight – candles and incantations. So that’s how I got to record a ceremony and that’s how I came to resolve the issue of ‘Ritual’ - to work an incantation - to turn that recording into flickering – Shadow dancing music.

TH – Splendid !

JB – This is from ‘Ritual – Rh 208’ –

[Pause for music]

These are not sound about or to evoke a Witches Ritual – This is a Witches Ritual – those sounds are the incantations of witches – filtered and imagined into a music that then might evoke your imagination to whatever.

It is an academic research project into the very nature of music - of what it is – of what it might be – of it’s power and precedence. This is music that has never been heard before. I offer this as my imagination and invention.

TH – Well – I’ve – really seen something today – and you say this is the First piece of two in a similar vein ?

JB – Only in that they are research projects into the musical Transcendence of concrete sounds.

TH – Aesthetics as an Experimental science.

JB – It is coupled here to an unrelated companion project – fortuitously the next Consecutive work – ‘Solitaire – Rh 209.’

It sound is like unpredictable small gong percussion – with a rich ‘golden’ timbre - if a sound could have such a property.

I was in the kitchen at Isobel – and as I have said already – Isabel is the building - so any space or object within it might be called on if needed - to the making music. So - I was in the kitchen - the tap at the time had a persistent drip. A bottle I think had been left just under the tap and was filling slowly from - a for the most part regular twin drip – but which had an interesting irregularity built in. As I listened fascinated by its musicality – I was also aware of an incremental change in pitch as the vessel slowly filled. I imagined how interesting this could be as percussion – so I set it up again – deliberately this time to record it - took the sound to the desk and started playing with it, I had been ‘Given’ this - as

it were - to become a work - and in a couple of hours I had 'Solitaire.' I don't remember why I called it that - except that a friend from the witches Ritual - Maria Finch - a fine drummer with whom - many years later - I would recorded 'Drum Mantra' - had always called herself 'Solitaire'. That could be the reason. Honey delicious little piece - I like it very much.

TH - From the opportune mind of the composer !

Ritual - I must hear it - all of it !

[Long Pause for music]

JB - We are getting on now - album 49 and something that has become unexpectedly popular - by my standards that is.

**'MSEP 10 Sonata Bass'** - Two works - two versions of a single session. The two pieces being 'Sonata Bass - Rh 214' and 'The Logic and the Apple - Rh 215' showing two completely different treatments of fundamentally the same source.

TH - Just before we get on to that - for my own sense of what is going on with you. Between the Ritual sessions and these sonata Bass sessions - you've explained - there are the sessions for three 'Stare Back' pieces - Yes ?

JB - Yes. Stare Back 2 and 3 and 'Three Quarks For Mr Mark.' Rh 210 to 212. There isn't an Rh 213 - it is one of the numbers I didn't use - not because of Tridecaphobia - a handful of numbers just got overlooked - there is no lost music to be found someday. I don't think I need any more do I ?

TH - Not for me to say Julian - I concern myself with what you have to show me.

JB - So - 'Sonata Base' then - and now a Sonata in 4 movements.

TH - You said along while back that in your definition a sonata can have movements but an Invention dose not - because an Invention is a piece in a suite of works that can stand alone. Why is that ?

JB - Because in a multiple movement work - I would expect individual movements to be discrete statements of import to the whole such that the absence of a movement removes something necessary to the completeness of the whole. Or put it another way a movement divorced from its whole is incomplete - perhaps it doesn't work to say that it is incomplete like that - you would get used to it I suppose if you had never heard the whole. But - certainly a multimovement work gives us discrete opportunities to view thematic material from the other side - from another side - and advances the possibility for levels of depth in a work.

TH - I'm glad the tape's running - that definition is your contribution to a debate and needs to be read as such.

JB - These are both MSEP pieces of radically different kinds. 'Sonata Bass - Rh 214' in four movements is an advance in sophistication over what I previously held up as a sonata - by needing to be in several movements. The later solo Drum sonatas are also in several movements - and 'Sonataphon' for Vibraphone has 2. The second piece 'The Logic and

the Apple – Rh 215' reemerges the material – much altered into one movement. Also we look again at the question of an Electroacoustic / Electronic divide.

TH - The MSEP / Em distinction we met last time with the Nono Series.

JB – That very same – because the first piece – the Sonata - is clearly a live performance – for a Bowed bass – Siouxsie – my Black Fender Fretless. Did three words ever go together so well as Black Fender Fretless ?

TH – it's a mark of Qualification – like welcome to the world my son – I agree – it bodes well [laughing]

JB – seriously - it is a live - if enhanced performance – the very soul of what I proposed by the term MSEP. From fundamentally the same materials we get such a vastly different result with 'The Logic and the Apple' which is Em if I ever heard any ? But I have electronic Drum music – It permeates my music – as now dose phasing – maybe. the Tranches are merging or just overlapping – this Album opens up that question again.

The cover is another Tetlow and Broadhurst masterpiece – and no I've got no Idea what the title 'The Logic and the Apple' means – I coined it – it doesn't derive from anything – but I don't remember why I chose it. Perhaps it is because it is baffling – like the music ? It's a piece of abstract painting in words – as the music is in sound.

My friend Composer Martin Gaughan said of Sonata Bass that he was

"Deeply impressed by this evocative movement" - Martin Gaughan - British Contemporary Composer - June 2015.

TH – High praise indeed – I'll take the first movement from Sonata Bass and –

JB – They are not long - eight minutes each give or take some –

TH – I want two to hear the contrast – No – I'll take Movement one of the Sonata and a few minutes from the start of Logic and the Apple to see that contrast – of the two levels of contrast on this Album I think this will be the most telling.

JB – Ok – the first movement of Sonata Bass –

[Pause for music]

And the opening of Logic and –

[Pause for music]

TH – Thankyou – two completely separate but related Ideas. Focusing the debate again on Performance – Performability to Systematising the outcome beyond even in principle Performability.

JB – There is something similar to be found in the first two - of the 4 pieces on the next album. Album 50 - and another MSEP album – **'MSEP 11 Sonata for Prepared Piano'**.

TH – go on –

JB - The First two pieces – do this paralleling trick – taking ‘two cherries from the same bite’ – as it were. Constituent silver – Rh 216 and Ag 47 – Rh 217 - respectively a live if enhanced performance for Bowed Bass and Studio avatar. By mixing the sound - like on a paint pallet – I gave the performance what I thought of as a ‘silver wash’ – a metallic lustier altering the original sound. From this I got the title ‘Constituent Silver’ - a serious nod to a flute piece 'Density 21.5' by Varese, which was a Platinum flute not a silver one – but that was where the thought led me. The second piece of the pair then became Ag 47 – which are respectively ‘Ag’ the Elemental Symbol and the 47 Atomic number of Silver.

The second piece is one of a number of such systematic pieces created to make a pair – for the sheer joy of the after shock resonance and the harmonics it stirred.

TH – I know the Varese piece well ! We’ll defiantly hear some of those – sooner or later. There just isn’t time to hear a sample of every piece today.

JB - I got a wonderful sense of circulation on Ag !

TH – Then I must hear it ! - The Ag piece please !

[Pause for music]

No don’t stop it – let it play through –

Now we can go on –

JB – I followed that up with a uniquely MSEP thought experiment - Beethoven’s Gross fugue Op 133 for String orchestra ! My Rh 218 project - was to electronically derive a possible realisation of this. I love Mahler’s reimagining of Schubert’s ‘Death and the maiden’ – his 14<sup>th</sup> St Qt for String orchestra. I bought it as a young man - a world premier recording I think. Anyway I knew he had done likewise to Beethoven’s Op. 95 quartet number Ahhm -

TH – Op 95 – that’ll be – ah – number 11 -

JB - Thankyou Tom – it was impossible to get a recording of that transcription that in my youth or when I did this - in 2007. Then this very year - I found it on Youtube. Quick diversion – I have a decreasing number of ‘Holy Grail’ recordings – that I must acquire or hear before I die. I have eliminated most of them – two this year – the first being Hans Werner Henze’s ‘Elegy for young Lovers’ – which I now have a triple CD of. The second was this recording of Mahler’s Transcription of Beethoven – as I said – on Youtube.

So – getting back - that was my thinking – they say ‘One makes the music one most wants to hear’ - but you have got to say what could I get out of doing this – I’m no Mahler – what would I achieve by it experimentally ? I thought What if I could make it a bit chunkier – a bit quirkier – a bit square pegged in a round hole ? I’ve had several goes at it this over the years. I thought to myself – since I’m going to be doing this interview with you – you might be looking into this whole area – so it was time to settle this thing once and for all – and I did – and I like it. I wouldn’t have got there if I hadn’t needed to for you – so thanks Tom. It would have just kicked around forever on.



TH - if I was of some assistance – I'm glad for it !

JB - The last piece on the disc – the piece that names the album – the 'Sonata for Prepared Piano – Rh 226' - was added to the rump of the album – as the next MSEP project - a little while down the line - is lovely. It is another exercise of creating music from the most limited means – on a piano you say ? Limited ? Well - it would be if we restricted it's pallet of available notes - without hurting it obviously. Many people have been composing for a piano with just five keys.

TH – [Laughs] there is such a thing ?

JB – Oh yes- and it's very popular. I though wanted my given restricted range of keys to range over the keyboard. A Little bit like serial music – you can use that note – that note – but not those notes – Yeah ?

TH – I think I'll have a sample of this - and maybe some tea ?

[Pause for Tea and music]

JB - We will have some crosscurrents to get through now – but it's not so hard – we've been through worse.

TH – I'll rely on you to navigate.

JB – Have you noticed we are getting into an area of smaller pieces – almost like studies again - yeah ?

TH – It seems to me you never let up on experimentation.

JB – It does feel – looking back – that there was something - particularly here that I was trying to learn – can't exactly put my finger on it.

TH – You were trying to firm up your musical essence - your aesthetic maybe – you have come along way – in such a short time. As if time slowed for you ! You have had five careers at once.

JB - Not including the collaborations

TH – how many albums would that add to your total ?

JB – To be honest I'm not sure – then or now ?

TH – Now – to date -

JB - Maybe . . . some - 80 or so - on top of these 120 were looking at - but not that far left to go today !

TH – Let's press on then – Album 51.

JB – Well - I'll have three albums on the go here - Em 18 – MPm 5 and MPm 6 - with cross currents between.

We start with in effect a companion piece to 'Gross Fugue' – Like with 'Logic and the Apple' and 'Ag 47' before it – it is the rhythmically enhanced – electronic companion to a performed piece. Taking that sound world developmentally forward. It would be the first piece for a new album - but an Em album – Em 18 - I am separating the companion projects – setting this down as Em not MSEP. This will be 'Gross Fugue – Slight return Rh 219' – an awkward little pun on the sound I imposed on a version of my Gross Fugue transcription – with the description Jimi Hendrix gave to his piece 'Voodoo Chile - Slight return'.

TH – Splitting a pair with a crosscurrent - along MSEP / Em lines – this divide is catching you up !

JB -The next session 'Imprints - Rh 220' however was a very different affair.' A live performance piece for a mic'd up a wooden pole - held up a few feet off the ground in the studio at Isabel and beaten with a verity of hard and soft headed sticks – causing – as it's name implies 'Imprints.' By the definition I laid down an MPm piece – 'percussion on anything other than drums.' It follows on in fact from the 'Konzertstück for wood and metal – Rh 158' – that I mistakenly placed on Dm 10 'High Abandon' that we met last time – close companions on opposite sides of the wire.

TH – they would have made a good album together – ahh but I know why not – even if as you said it was in the wrong place. Because of Chronology - and it all being set in stone now. Would you though object to them being brought together if somebody wanted it so – If somebody would publish it so ?

JB - Certainly not – this order is just 'my Edition' – that's all — I would love to see it's contents taken up. The pieces carry their relationships with them in their Rh numbers.

TH - So now you have to open up an MPm album – MPM 5 – which might take the name 'Imprints' ?

JB – It might well have done but – but - my musical head was all over the place - and I soon put my drumsticks aside to return to the newly opened Em 18 - for a big project.

I have a couple of friends who perform with a Change ringing group – we'll call them C & M. I was invited to their local tower to make some field recordings at a rehearsal. These Bell Harmonics then formed the basis of two new works – a 'Yin and a Yang' 'Change Circle – Rh 221 and 'Pattern Dance - Rh 222.' These are Very large Electronic confections – like abstracted Stained Glass in Sound – acres of blue and yellow fragmenting down to tiny pieces with fractal boundaries. Superficially similar works but with very different moods and colours.

For the album Em 18 – now having to be a double album – I placed 'Change Circle' on the first disc to be followed by 'Gross fugue Slight return' the Rh 219 project we left behind for the want of music to fill the space. Because I was dealing with two huge slabs of sound I felt it would be unbalanced to have placed them Chronologically –

TH – Despite all you said about Artful track ordering ?

JB – Despite it ! The larger and more important work by far I felt should open the album – so as not to have Rh 219 colour the mind of people listening before they reached the Main point of the Album. The same would be true of the second disc so there was only one place

I could put it – between the two as it were – at the end of the first disc. Offering an uninterrupted introduction to both main pieces. 'DCM 51 – the 51<sup>st</sup> album is then **'Em 18A & B Change Circle.'**

From the Album Text -

"An Opposition of passions, and a Gross Fugue !

Em 18 A & B - Change Circle. A Change Circle is a group who Ring in the Changes in a bell tower, Campanologists or Change Ringers. A ring of changes being the order in which the bells are to be rung in - a cycle or 'Change.' Here we have a euphoria of bell harmonics, a celebration - and a down, a consternation."

TH - That sounds like a big ask – time commitment wise – but then all your music is a big ask –

JB – I like to work at a monumental scale – I don't always – some lovely miniatures coming up on the next few albums.

TH – I think I'll hear – the opening minutes of Change Circle. Then I'll know where I'm going to.

[Pause for music].

So – to your 52<sup>nd</sup> Album – and these Albums are not issued in any conventional order are they – they are were fixed in this component order as you made them but were published piece meal !

JB – As I said - some 40 titles from all over the catalogue – when Jim Tetlow was at first uploading them for me – with covers we designed between us. Through his consummate skill as a Professional Graphic Designer he could do almost anything I wanted. He surprised and delighted me often – but as an Artist I have very strong Ideas about my look. Even to how my name should appear on all the albums – with 'Julian' in Times New Roman italic and the letter 'j' in lower case. Something I developed for my publications in the Art world.

TH – Right with you 'julian' – did you notice I used a lower case 'j' there !

JB – Ahhh - I just assume people always do - but I'm very glad you mentioned it.

TH- And of course there are your Tranche sub grids –

JB – Yea – I built one for each - on which all but those first 40 albums were actually loaded – to spread the 'load' as it were and display their Tranche order so you can see how that subject area develops. They all then link up to an 'Album Cover Icon' on the new main grid – in their DCM order so that you can see how the whole thing fits together – bit of lateral thinking got me round that problem of seeing both orderings with just one posting.

TH – Nice and now of course it's all up .

JB – Designed to be an online library – like the online gallery for my Art – where people can visit my music - to stream – or buy copies if they wish. No one need buy the albums but anyone could know them if they so wished.

TH – A beautifully Helpful Idea.

To Album 52 then - that open MPm project – MPm 5 ?

JB – Yes – we have the Rh 220 session 'Imprints' in the can for a 5<sup>th</sup> MPm album. The next several projects will fill the 5<sup>th</sup> and a 6<sup>th</sup> MPm album and complete MSEP 11 !

TH – The Logistic mind of the composer.

JB – The next project to attend to was a 4<sup>th</sup> Klaviastuck – Rh 223. Quite an engaging piece really – using a very restrictive pallet but stacking repeating notes to form quite complex patterns. 'Klaviastuck 4' would have sat comfortably next to 'Imprints' on a 5<sup>th</sup> MPm album but for the fact that it was followed by one of those Performative – Studio enhanced pairs Glocken – Rh 224 & G-Squared – Rh 225 - with time borrowed on an Orchestral Glockenspiel. I did not want to separate them this time.

Incidentally – the first three Klaviastuck were on the album MSEP 5 - as music with strings - however metallic. The 4<sup>th</sup> one I thought of as being for tuned metal percussion. An interesting debate arises here as to the use in Contemporary music of the Piano as a percussion instrument.

TH – oh indeed fascinating – riches beyond – and it's here in you too. We must have that debate sometime -

JB – In a sense I already have !

The point being that I now have an important pair that must stay together and needed nearly an hour of space between them. So the Klaviastuck gets forwarded to open a future 'MPm 6' album and these works in hand - will now complete MPm 5 as '**MPm 5 Glocken.**'

This I followed in short order by the 40 minute 'Sonataphon – Rh 227, in two movements with the short and delightful Etuda for desert – as my 53<sup>rd</sup> Album '**MPm 6 Etuda.**' This is one of the richest periods in my percussion life – MPm 5 – MPm 6 and MSEP 12 coming up - Albums 52, 53 and 54 are my '**Tuned Percussion Triptych.**' Not as a crosscutting series of works this time - but three consecutive albums – as a set together but cross the Tranche divide.

TH – We are getting ahead of ourselves – we must pause for music. I haven't really time today to hear both sides of the Glocken pairing – suffice for now to know of them – I'll hear 'Imprints.'

JB – it is a good – short – example of what I call my '**Exploratory Percussion Style.**' Using it to investigate the sound possibilities of this rich wooden pole an instrument. Like in my first Drum sonatas.

[Pause for music]

TH – Now what about this Sonataphon ?

JB – This time with borrowed time on a Vibraphone over a week or so - Seeking to combine the minimal sound of the Klaviastuck – with the maximising properties of my finger percussion – to make a whole new hybrid piece of tone and pure rhythm.

TH – Stop ! I must hear some ! The opening of the first movement !

[Pause for music]

So borrowing time on instruments and hybridising pieces for them – that is not so far away from your Idea of creating ‘inventions for disparate instruments.’ This time not maximising the limitations of the instrument but Maximising a deliberate limitation of the instrument’s natural richness. Serial like but with the framework of an improvisation ?

JB – You have it exactly – but before we go on we must touch on a little gem – I call it a gem – forgive me for that – it’s just that its very small – just 3 minutes and shines richly – It it’s called ‘Etuda - Rh 228’ something bit lighter hearted after all the work on Sonataphon - and it gives its name to the Album ‘MPm 6 Etuda’

TH – From the nurturing mind of the composer. I must hear your Etuda !

[Pause for music]

Oh Splendid !

JB – but with the last of this trio - Album 54 – ‘**MSEP 12 Algorim**’ – things become Very difficult.

TH – Oh – just for a change !

JB – As before – with borrowed time on a tuned Percussion instrument – this time a Marimba. The piece I had planned would require two players – but not in exploratory improvisation. So I laid the first part down – and layered the second to the first requiring a lot of postproduction to make it flow like it was live. I Called this Amarimb – Rh 230.’ The title is ‘Marimba’ with the last letter placed first.

TH -Beautiful – I wish I’d been there with you !

JB – Several people have asked – but when I’m working I can’t have people watching – it would totally shut me down. Composition however you do it is a private delicate state – you need to focus all your energy into the work not partially on the thought that you are being watched – and judged. My answer is - that when you listen to these works you are with me – in that unique state of mind – because I am a composer and performer. Something much more familiar on the ‘opposite side of the fence’ -in rock and pop that is. My music has a quality of discovery – In that - you are there with me as you follow my mindset. Oddly though – that is exactly what happens in a public performance at which I am no stranger and enjoy very much.

TH – So how do you think it differs ?

JB – It’s a question of experience. If I’m on a stage with a drum - solo or in combination I’ve got hundreds of hours of playing behind me. Sitting to create something entirely new that

might require many hours in the studio – that’s me unguarded – in the process of discovery and self assessment. In that time I need to be alone – so I can find my resources and find my music – I don’t want to be known for the struggle to find the path – to find that music. Not in the early stages when I’m casting about for the direction. The form will find me – I am looking and will know it when I see it. I then work to find within a piece its natural Level – its proper balance with me. Sometimes at the beginning – I wasn’t so careful – I was so overwhelmed by this change of phase – from Artist to Composer – from the song – that ‘change from major to minor.’ Sometimes I lost my way – I had no one to guide me in my constant need to look again – and yet again. I was often bang on but I wasn’t sure. I was often filled with doubt as often boundlessly confidence ! I studied the sound of the music I adored ceaselessly since in my early teens and become a bore for England about Modern music and Electronic music - et al ! Now people are telling me that I have and do make music – and this I’m telling to a musicologist – who wanted to be here. It’s a question of experience.

TH – Granted. I hear all of that. And yes – I want to be here. I’m learning about you.

Finish the Album for me.

JB - yes – ‘Amberimb – Rh 231’ – Shifts the letter ‘A’ about to get ‘Amber’ - as some spectral shifting gave the sound an ‘Amber’ tone – like Jim Tetlow’s Amber tiled cover montage.

The last piece here – the title piece ‘Algorim – Rh 232’ – the longest piece on the Album is a curious experiment using an Algorithm to process the sound of plucked strings bleakly away from any natural tone. The name puns on this. With hindsight I would not have named the album for it - a minor work really.

TH – We’ll pass over it then. I enjoyed the letter switching in the title ‘Amarimb’ - let’s hear some of it.

[Pause for music]

JB – Album 55 is ‘**Dm 12 Underdrum**’ – the largest work of which is the opening ‘Thee Quarks for Mr Mark – Rh 220’ recorded away back and awaiting Dm projects to form a Dm album.

TH – A crosscurrent from the Stare Back Series – Yes ?

JB – You’re right on it Tom.

Now these new Dm pieces come mainly from Live performances –recorded at St Nicholas’ church quite near my home. And a little piece a friend and I recorded – ‘Ella and Julian Drum’ – charming little piece and that would be the end of Dm for a while until It reinvents itself with some importance much later on.

Underdrum is album 55 – all you need to know about its coming together really is that it’s bewilderingly complex and quite irrelevant. The title piece ‘Underdrum – Rh 57’ is the last of the True Studio Drum Studies.

For an example piece from it - I would choose – ‘She is the one – Rh 280’ recorded at St Nicholas – Loud and Spirited.

TH – We shall do that.

[Pause for music]

This album collected together the last of the first phase of Dm recordings – Dm 13 the next album opening an important new phase of percussion with a second set of inventions for Djembe -would not come until album 92. Dm – the force that gave birth to my music was – for now a spent force – the super attractiveness of the MSEP / Em divide – that we have often spoke of will dominate my thoughts in a set of colossal works I used to think of as a line of gold across my Discography – a set of albums I would come to call ‘The Golden Band’ – which is our next Chapter and the subject of our next Interview. We are really almost over the New Horizon and one obvious change is the end of my interest in recording Percussion works. Also I stop playing live solo percussion - after so many years of doing it – I guess with recording it I’ve said everything I wanted to say in it – and in the future would only do it in the studio. The golden Band will be about the Elegance of long sustaining string music and **‘Percussion becomes Pulse’**.

TH – Let’s Hear that piece –

JB – ‘She is the one – Rh 280’

[Pause for music]

TH - The last hill to cross – as it were – a last push to the Golden Band.

JB – Album 56 – one we have met actually: **‘MSEP 13 Turing’** – containing two works – ‘Particulate 5 Rh 237’ and ‘Turing Boogie Woogie’ – Rh 238 – in effect ‘Stare Back 5’ – which takes the notion of its name from the last work of Piet Mondrian – in his new York Studio in 1944 – ‘Broadway Boogie Woogie’ – made with coloured Duct tape.

TH – Oh such interesting men - Mondrian and Alan Turing – if we only had spare lifetimes I could certainly spend one studying those two.

JB – My goodness yes – my heroes make it into my titles – not all of them - I haven’t enough works for that – Mondrian is a Hero from my earliest days in Art – right through my Career – and Turing is a hero from University days studying Foundational Logic.

TH – Let’s hear part of Turing’s Boogie Woogie – to see if it does !

[Pause for music]

JB – Just to be sure and tie up loose ends There wasn’t a Rh 229 or a 233 – they just got miss counted somewhere – any way there is no lost music - Rh is pretty reliable as a source – session 234 was ‘Particulate 4’ and that got put on the end of the album MSEP 4 – long time ago when we looked at that. We’ve filled that left over space now – as you said Logistics – ‘to most efficiently fill space’ – like for like. Rh 235 and 236 are little Em Pieces and fill a space on Em 19 – now with the two Turing pieces we are Bang up to date. Then the last work of 2007 - the most momentous year of my life – is Rh 239 : Nom e Nono – and it fills the gap on MSEP 6 - All done now – a new year.

TH – Man that’s some detail –

JB – I researched it for us both – I’m only going to do this once so I might as well try and get it right. For me I’ve got a survey of my music that I’ve had to look deeply into to be ready to you. You will take something from this to help you find what you are looking for – I hope we will both have something to keep from this.

TH – Most certainly so. I shall go through the transcript of this and come back with questions to ask. Last push ?

JB – Last push.

The Christmas holiday period is coming to an end – it is past New Year into 2008 – I have two projects on the go. The last two Albums in our reach. Chronologically the first by a few days is Fibonacchi – Rh 240. A piece quite unlike anything I’ve ever done – a Voice montage of scattered pieces rolling through a radio broadcast about Leonardo Fibonacchi – the greatest western Mathematician of the middle ages. Not really knowing if I could own this outrageous piece as music I left it a short time to look at another problem in hand. I then adopt Rh 240 as my 57<sup>th</sup> album ‘**Em 19 Fibonacchi**’ – with inclusion of the two little ‘Fierite’ pieces – Rh 235 and 236 – created from field recordings at public firework display.” I asked the Lady I was with – Ella from Ella and Julian Drum’ – to give me a moment of silence for the take – big ask – we didn’t get past Christmas.

TH - Dandy as those might be - the meat of the dish is Fibonacchi – so we must sample that.

[Pause for music]

JB – That other project at hand at the time came from a good friend who I’ve known since school – electronics and computer genius Anthony Hulett – who comes back to town with his cats for Christmas to see his parents. That year he lent me a Theremin he had built. Not being especially musical himself he wondered what I would do with it. I have to say I disappointed him – but I didn’t disappoint myself - I’ll let the album cover take up the story –

“A true musical fantasy, a true musical oddity, a friend lent me a Theremin he had recently built, and left it with me onetime over Christmas. My connection, emotionally with the instrument, was in the soundtrack to the Sci-Fi classic ‘Forbidden Planet’. So the direct influences on me in this work, I would suggest, were the Forbidden Planet Score and Jimi Hendrix’s ‘Stars and Stripes’ at Woodstock, for his ‘carpet bombing’ effect at a Vietnam. They were certainly perennial interests of mine, and here, “the needs must make when opportunity knocked.”

In fact a correction needs to be made here. Something I didn’t know at the time. The Composers of the Forbidden planet score - Babe and Louis Barron – so often and erroneously said to have used a Theremin did infact use a Ring Modulator – and various experimental circuitry – Al la Stockhausen. And these two were found and hired by the Films producer in New York’s Greenwich Village ‘beatnik music scene’ – where Art Rock Art and the Classical Avant Garde – came together. This soundtrack is the first wholly electronic soundscore and gave birth at a stroke to the idea of an association between electronic sound and a Cosmic or ‘Kosmiche’ sensibility as it came down - through Pink Floyd and the Berlin School to me. It was one of my ‘Holy Grail Pieces’ – that I have now owned for some time thanks to a very generous Maths and Music Genius friend of mine -



Jonathan Sheppard – with whom I recorded the percussion Album ‘Octopus Jam.’ It’s on the DCM Grid. Maria Finch was on part of that recording - with whom I recently recorded ‘Drum Mantra’ – releasing it just a few weeks ago as my 122<sup>nd</sup> Album.

TH – What a web of music your life is !

JB – It all seems to come around – and I haven’t really touched on my Big Collaborations – the first of which – Tetlow and Broadhurst – with the Fabulous Jim Tetlow – began in this summer of 2007 – when Maria Finch drove me to Leicester to see Leicester Underground Electronics unit Endgame – some old friends of mine – the Freeman Brothers - from their legendary music shop – where I once spent every Saturday eagerly learning about the cosmic and the far out. Jim was the 3<sup>rd</sup> member – Maria said meet him – I did – and I was destined to have done so. A couple of weeks later we recorded our First album on that same stage. ‘Live at Bambu’ – Live at the now long gone Bambu club. The rest as they say really is – the causal beginning of Everything Collaborative. My whole career in music. You wouldn’t be including me in your Ph.D. I would be nowhere without the help of my friends.

TH - I can only repeat – what a web of music your life is.

So – to finish off – where are we ?

JB – We are at the second of those two albums – No. 58 ‘**MSEP 20 Therimi**’ the last in our present reach – containing two pieces ‘Therimi – Rh 241 and its companion Umair – Rh 243.

And in the midst of all that is Rh 242 – a very special piece and a very special number – one that properly belongs to the next section. One which in its fledgling existence - would prove to be something Immortally difficult to complete with about 50 versions of its 1 hour first movement – 2 hours with the other proposed movements that gave their lives as the years went by - in the evolution of the First of my now Five Symphonies – the last of which came out on the 12<sup>th</sup> of November this year – a few days ago - as my 123<sup>rd</sup> Album - all of which we will come to in time. Much of which - next time.

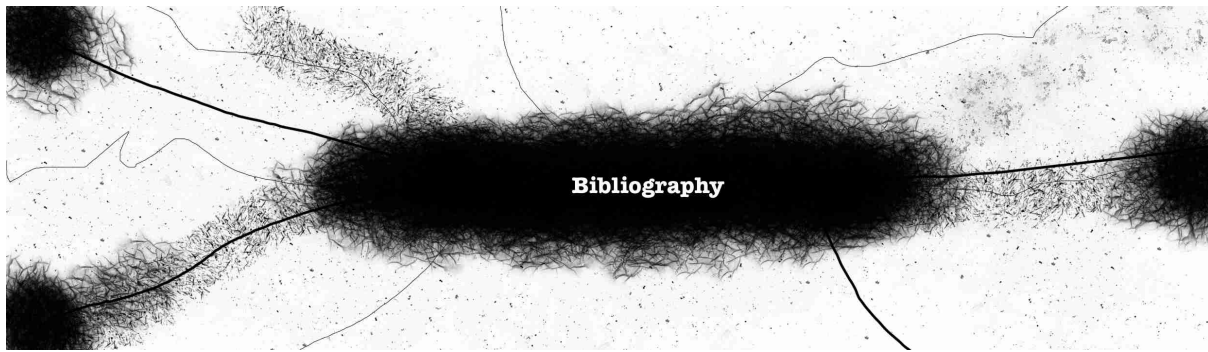
TH – So here we are - 31 albums after we started this survey of the period after your Big Bang had flooded your world with those first 27 ‘Blue Cherries – your foundation stones. 58 albums then - so far - 61 to go - and soon the first of what I might call on your behalf ‘A sea of Symphonies.’ All yet to come.

Julian Broadhurst – thankyou Very much.

Note. 10.380 words – 16 Drafts

There are numerous interests discussions and definitions here – on form and performance instrumentation and studio practice – I hope it is of interest.

See you in part 5 !



—————> and... and... and... you arrive here on a line of flight...

- Adams, F. and K. Aizawa, 2001. "The bounds of cognition". *Philosophical Psychology*, Vol. 14 (1), pp. 43-64
- Adorno, T.W., 2007. *Philosophy of Modern Music*. 3rd ed. Trans. Anne G. Mitchell and Wesley V. Blomster. London: Continuum
- Agrell, J., 2010. "The Creative Hornist Off the Beaten Path: Tales of Creative Hornists, Part I." *Horn Call: Journal of the International Horn Society*, 10, vol. 41, no. 1, pp. 54-57
- Alstott, J., P. Panzarasa, M. Rubinov and E.T. Bullmore, 2014. "A Unifying Framework for Measuring Weighted Rich Clubs". *Nature, Scientific Reports* volume 4, Article number: 7258. Published online 1 December 2014. Accessed online 4 March 2018: <https://www.nature.com/articles/srep07258>
- Arbo, A., 2009. "Some Remarks on "Hearing-as" and its Role in the Aesthetics of Music." *Topoi*, 09, vol. 28, no. 2, pp. 97-101
- Aspers, P., 2011. *Markets*. Cambridge: Polity
- Attali, J., 1985. *Noise: The Political Economy of Music*. Trans. Brian Massumi. Minneapolis: University of Minnesota Press
- Avanessian, A. and S. Malik, 2016. "The Specuative Time Complex". *D/S*. Accessed online 4 March 2018: <http://dismagazine.com/blog/81218/the-speculative-time-complex-armen-avanessian-suhail-malik/>
- Ayer, A.J., 1982. *Philosophy in the Twentieth Century*. London: Phoenix
- Badiou, A., 2011. *Wittgenstein's Antiphilosophy*. Trans. B. Bosteels. London; New York: Verso
- Baig, E.C., 2017. "Joshua Bell: VR could popularize classical music". *USA Today*. Accessed online 4 March 2018: <https://www.usatoday.com/story/tech/talkingtech/2017/02/23/joshua-bell-vr-could-popularize-classical-music/98308284/>
- Baker, J., 2017. "How Spotify — And its Playlists — Are Evolving". *PIAS*. Accessed online 4 March 2018: <https://www.pias.com/blog/how-spotify-and-its-playlists-are-evolving/>
- Ball, P., 2010. *The Music Instinct: How Music Works and Why We Can't Do Without It*. London: Bodley Head
- Barber, A., 2010. *Language and Thought*. Milton Keynes: The Open University
- Bargainnier, E.F., 1978. "W. S. Gilbert and American Musical Theatre." *Journal of Popular Culture*, vol. 12, no. 3, pp. 446-458
- Barrett, G.D., 2016. *After Sound: Toward a Critical Music*. New York; London: Bloomsbury
- Barthes, R., 1977. *Image, Music, Text*. Trans. and edited S. Heath ed., London: Fontana

- . 1984. *Camera Lucida: Reflections on Photography*. Trans. Richard Howard. London: Flamingo
- Baum, E.B., 2004. *What is Thought?* Cambridge, Mass; London: MIT Press
- Beard, D. and K. Gloag eds., 2005. *Musicology: The Key Concepts*. London: Routledge
- Beckerman, M., 1989. "The Sword on the Wall: Japanese Elements and Their Significance in "The Mikado"." *The Musical Quarterly*, vol. 73, no. 3, pp. 303-319
- Beethoven, L.v. 1930. *Symphony no. 5, C minor. Op. 67*. M. Unger and W. Altmann eds., London: Eulenburg
- Behan, D.P., 1979. "Locke on Persons and Personal Identity." *Canadian Journal of Philosophy*, Mar 1, 1979, vol. 9, no. 1, pp. 53-67
- Belsey, C., 2002. *Poststructuralism: A Very Short Introduction*. Oxford: Oxford University Press
- Bergeron, K. and P.V. Bohlman, 1992. *Disciplining Music: Musicology and its Canons*. Chicago: University of Chicago Press
- Blake, T., 2017. "Concepts out of the Shadows Notes on Deleuze and Guattari's "What is Philosophy?" (2)". *Agent Swarm Blog*. Accessed online 4 March 2018: <https://terenceblake.wordpress.com/2017/08/14/concepts-out-of-the-shadows-notes-on-deleuze-and-guattaris-what-is-philosophy-2/>
- Bluemink, M., 2015. "The Web as Rhizome in Deleuze and Guattari". *Blue Labyrinths Blog*. Accessed online 4 March 2018: <https://bluelabyrinths.com/2015/07/15/the-web-as-rhizome-in-deleuze-and-guattari/>
- Bonnet, R.M., 2016. "Archipelagic Listening" Podcast, *Urbanomic*. Accessed online 4 March 2018: <https://www.urbanomic.com/podcast/archipelagic-listening/>
- Borges, J.L. 2018. Wikiquote. Accessed online 4 March 2018: [https://en.wikiquote.org/wiki/Jorge\\_Luis\\_Borges](https://en.wikiquote.org/wiki/Jorge_Luis_Borges)
- Born, G. ed., 2013. *Music, Sound and Space: Transformations of Public and Private Experience*. Cambridge; New York: Cambridge University Press
- Boudry, P. and R. Lorenz, 2016. "Silent" Film art installation. Accessed online 4 March 2018: <https://www.boudry-lorenz.de/silent/>
- Bourriaud, N., 2009. *Relational Aesthetics*. Trans. S. Pleasance and F. Woods with M. Copeland. Monts: Les presses du réel
- Bowman, W.D., 1998. *Philosophical Perspectives on Music*. New York: Oxford University Press
- Bown, O., 2015. "Attributing Creative Agency: Are we doing it right?". *Proceedings of the Sixth International Conference on Computational Creativity June 2015*, pp. 17-22
- Brassier, R., 2013. "Unfree Improvisation/Compulsive Freedom". *Mattin*. Accessed online 6 March 2018: [http://www.mattin.org/essays/unfree\\_improvisation-compulsive\\_freedom.html](http://www.mattin.org/essays/unfree_improvisation-compulsive_freedom.html)
- Bretan, M. and G. Weinberg, 2016. "A Survey of Robotic Musicianship". *Communications of the ACM*, Vol. 59 No. 5, pp. 100-109
- Brits, B., P. Gibson and A. Ireland, eds., 2016. *Aesthetics After Finitude*. Melbourne: re.press
- Brodsky, R., 2015. "Music Apps That Don't Exist Yet (But Should)". *Spin*. Accessed online 3 March 2018: <https://www.spin.com/2015/10/future-music-apps/>

- Bronowski, J. and British Broadcasting Corporation., 1973. *The Ascent of Man*. London: British Broadcasting Corporation
- Brooks, K. ed., 2006. *Chambers Dictionary of Music*. Edinburgh: Chambers
- Brown, C., 1991. "Historical Performance, Metronome Marks and Tempi in Beethoven's Symphonies." *Early Music*, May, vol. 19, no. 2, pp. 247-250
- Brown, J., 2010. "Buzz and Rumble: Global Pop Music and Utopian Impulse". *Social Text*, Spring 2010, vol. 28, no. 1, pp. 125-146
- Bruntrup, G. and L. Jaskolla, eds., 2016. *Panpsychism: Contemporary Perspectives*. Oxford: Oxford Scholarship Online
- Bryant, L.R., 2011. "Freedom Evolves: Deleuze's Transcendental Aesthetics". *Larvalsubjects* Blog. Accessed online 4 March 2018: <https://larvalsubjects.wordpress.com/2011/04/12/freedom-evolves-deleuzes-transcendental-aesthetics/>
- Buchanan, I. and M. Swiboda eds., 2004. *Deleuze and Music*. Edinburgh: Edinburgh University Press
- Bull, M., 2007. *Sound Moves: iPod Culture and Urban Experience*. London; New York: Routledge
- Burland, K. and A. McLean, 2016. "Understanding Live Coding Events". *International Journal of Performance Arts and Digital Media*. Volume 12, 2016, issue 2: Live Coding, pp. 139-151
- Burrows, D., 2005. *Handel and the English Chapel Royal*. Oxford: Oxford University Press.
- Buzan, T., 2010. *The Mind Map Book: Unlock Your Creativity, Boost Your Memory, Change Your Life*. B. Buzan ed., New ed. Harlow: Pearson/BBC Active
- Byrne, N., 2016. "How Music Works: How to compose music with multimedia in mind". *The Irish Times*. Accessed online 3 March 2018: <https://www.irishtimes.com/culture/music/how-music-works-how-to-compose-music-with-multimedia-in-mind-1.2583148>
- Cage, J., 1978. *Silence: Lectures and Writings*. London: Boyars
- Cairney, J.W.G. and R.M. Burke, 1996. "Physiological Heterogeneity Within Fungal Mycelia: An Important Concept for a Functional Understanding of the Ectomycorrhizal Symbiosis". *New Phytologist*, Dec., vol. 134, no. 4, pp. 685-695
- Campbell, E., 2013. *Music After Deleuze*. London: Bloomsbury
- Campbell, S., 2006. "The Conception of a Person as a Series of Mental Events". *Philosophy and Phenomenological Research*, Sep., vol. 73, no. 2, pp. 339-358
- Carr, E.H., 2001. *What is History?* R.J. Evans ed., 40th Anniversary ed. Basingstoke: Palgrave
- Cavicchi, D., 1998. *Tramps Like Us: Music & Meaning Among Springsteen Fans*. New York; Oxford: Oxford University Press
- Chayka, K., 2011. "WTF is... Relational Aesthetics?" *Hyperallergic*. Accessed online 4 March 2018: <https://hyperallergic.com/18426/wtf-is-relational-aesthetics/>
- Chalmers, D., 2018. "The Mind Bleeds Into the World" Video conversation with *Edge*. Accessed online 4 March 2018: [https://www.edge.org/conversation/david\\_chalmers-the-mind-bleeds-into-the-world](https://www.edge.org/conversation/david_chalmers-the-mind-bleeds-into-the-world)
- Chanan, M., 1995. *Repeated Takes: A Short History of Recording and its Effects on Music*. London: Verso
- Chandler, D., 2007. *Semiotics: The Basics*. 2nd ed. London: Routledge

- Christl, W. and S. Spiekermann, 2016. "Networks of Control: A Report on Corporate Surveillance, Digital Tracking, Big Data & Privacy". *Cracked Labs*. Accessed online 4 March 2018: <http://crackedlabs.org/en/networksofcontrol>
- Chua, D.K.L., 2014. *The Galitzin Quartets of Beethoven: Opp. 127, 132, 130*. Princeton NJ: Princeton University Press
- Chuter, J., 2017. "Interview: Belisha Beacon". *Attn:Magazine*. Accessed online 3 March 2018: <https://www.attnmagazine.co.uk/features/11610>
- Clark, A., 1997. *Being There: Putting Brain, Body, and World Together Again*. Cambridge Mass.: MIT Press
- . 2003 *Natural-born Cyborgs: Why Minds and Technologies Are Made To Merge*. New York: Oxford University Press
- . 2015. "What 'Extended Me' knows". *Synthese* 192 (11) pp. 3757-3775
- . 2016. "Andy Clark on Prediction, Action, and the Embodied Mind". Podcast (BSP 126), *Brain Science*. Accessed online 4 March 2018: <http://brainsciencepodcast.com/bsp/2016/126-andyclark>
- Clarke, A.C., 2018. Wikipedia page. Accessed online 5 March 2018: [https://en.wikipedia.org/wiki/Clarke%27s\\_three\\_laws](https://en.wikipedia.org/wiki/Clarke%27s_three_laws)
- Clarke, E.F., 2005. *Ways of Listening: An Ecological Approach to the Perception of Musical Meaning*. New York; Oxford: Oxford University Press
- , 2010. *Music and Mind in Everyday Life*. N. Diben and S. Pitts eds., Oxford: Oxford University Press
- Clayton, M. ed., 2008. *Music, Words and Voice : A Reader*. Manchester: Manchester University Press published in association with The Open University
- Clayton, M., T. Herbert and R. Middleton, eds., 2002. *The Cultural Study of Music: A Critical Introduction*. New York; London: Routledge
- Clendinning, E., 2010. "The Cambridge Companion to the Beatles by Kenneth Womack". *Journal of American Culture*, 12, vol. 33, no. 4, pp. 353-354
- Clynes, M.E. and N.S. Kline, 1960. "Cyborgs and Space". *Astronautics*, September 1960. Accessed online 4 March 2018: <http://web.mit.edu/digitalapollo/Documents/Chapter1/cyborgs.pdf>
- Cobb Jr., J.B., 2015. *Whitehead Word Book: A Glossary with Alphabetical Index to Technical Terms in Process and Reality*. Anoka MN: Process Century Press, (Kindle edition)
- Cohen, S., 1993. "Ethnography and Popular Music Studies". *Popular Music*, vol. 12, no. 2, pp. 123-138
- Coleman, R. and J. Ringrose, eds., 2013. *Deleuze and Research Methodologies*. Edinburgh: Edinburgh University Press
- Collins, S. and S. Young, 2014. *Beyond 2.0: The Future of Music*. Bristol, CT: Equinox Publishing
- Commeyras, M., M.F. Orellan, B.C. Bruce and L. Nielsen, 1996. "What do feminist theories have to offer to literacy, education, and research?". *Reading Research Quarterly*, vol. 31, no. 4, pp. 458-468
- Conrad, F.G. and J. Blair, 2009. "Sources of Error in Cognitive Interviews". *Public Opinion Quarterly*, March 20, vol. 73, no. 1, pp. 32-55



- Cook, A., 2017. "The Power of Playlisting". *Music Business Journal*. Accessed online 4 March 2018: <http://www.thembj.org/2017/08/the-power-of-playlisting/>
- Cook, N., 2000. *Music: A Very Short Introduction*. Oxford: Oxford University Press
- Cook, N. and M. Everist, 1999. *Rethinking Music*. Oxford; New York: Oxford University Press
- Cooke, D., 1959. *The Language of Music*. Oxford: OUP
- Coplan, A. and P. Goldie eds., 2011. *Empathy: Philosophical and Psychological Perspectives*. Oxford: Oxford University Press
- Coursera, 2015. *Questionnaire Design for Social Surveys*. Online course by University of Michigan. F. Conrad and F. Kreuter, presenters. Details accessed online 4 March 2018: <https://www.coursera.org/learn/questionnaire-design>
- Cox, C. and D. Warner eds., 2004. *Audio Culture: Readings in Modern Music*. New York; London: Continuum
- Cox, G. and A. McLean, 2013. *Speaking Code*. Cambridge, MA: The MIT Press
- Crabtree, P. and D.H. Foster, 2005. *Sourcebook for Research in Music*. 2nd ed. Bloomington: Indiana University Press
- Crawford, S., 2010. *Aspects of Mind*. Milton Keynes: The Open University
- Crickmore, L., 1966. "Neo-Thomism as a Basis for the Teaching of Music". *British Journal of Educational Studies*, Nov., vol. 14, no. 3, pp. 36-44
- Crimp, D., 2002. *Melancholia and Moralism: Essays on AIDS and Queer Politics*. Cambridge, Mass.: MIT Pres.
- Cross, I., 1998. "Music Analysis and Music Perception". *Music Analysis*, Mar., vol. 17, no. 1, pp. 3-20.
- 2009. "The Evolutionary Nature of Musical Meaning". *Musicae Scientiae*, September 21, vol. 13, no. 2 suppl, pp. 179-200
- Crowther, P., 2007. *Defining Art, Creating the Canon: Artistic Value in an Era of Doubt*. Oxford: Clarendon
- . 2012. *The Phenomenology of Modern Art: Exploding Deleuze, Illuminating Style*. London: Continuum
- Cryer, P., 2011. *The Research Student's Guide to Success*. Maidenhead: The Open University Press
- Cull Ó Maoilearca, L., 2016. "On immanence". Paper delivered at *The Concept of Immanence in Philosophy & the Arts Conference*, Vienna 5-7 May 2016. Accessed online 4 March 2018: [https://www.academia.edu/31252854/\\_On\\_Immanence](https://www.academia.edu/31252854/_On_Immanence)
- Cumming, N., 2000. *The Sonic Self: Musical Subjectivity and Signification*. Bloomington: Indiana University Press
- Dalhaus, C., 1989. *The Idea of Absolute Music*. Trans. R. Lustig. Chicago: University of Chicago Press
- Daly, I., and A.B. Haney, 2014. *53 Interesting Ways to Communicate Your Research*. London: The Professional and Higher Partnership Imprint
- Danaher, J., 2015a. "The Extended Mind and the Coupling-Constitution Fallacy". *Philosophical Disquisitions Blog*. Accessed online 4 March 2018: <http://philosophicaldisquisitions.blogspot.co.uk/2015/05/the-extended-mind-and-coupling.html>

- . 2015b. "Neuroenhancement and the Extended Mind Hypothesis". *Philosophical Disquisitions* Blog. Accessed online 4 March 2018: <http://philosophicaldisquisitions.blogspot.co.uk/2015/01/neuroenhancement-and-extended-mind.html>
- . 2017. "Extended Cognition and the Possibility of Extended Personal Assault". *Philosophical Disquisitions* Blog. Accessed online 4 March 2018: <http://philosophicaldisquisitions.blogspot.co.uk/2017/05/extended-cognition-and-possibility-of.html>
- Davies, B., 2000. *A body of writing, 1990 – 1999*, Walnut Creek CA: Alta Mira Press
- Davies, H., 1968. *The Beatles: The Authorised Biography*. London: Heinemann
- Davies, S., 1987. "Authenticity in Musical Performance". *The British Journal of Aesthetics*, December 21, vol. 27, no. 1, pp. 39-50
- . 1994. *Musical Meaning and Expression*. Ithaca, NY; London: Cornell University Press
- . 2007. *Philosophical Perspectives on Art*. Oxford: Oxford University Press
- . 2014. "Anglo-American philosophy of music, 1960–2000". *Grove Dictionary of Music (online)*. Accessed online 4 March 2018: [http://www.oxfordmusiconline.com.libezproxy.open.ac.uk/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000052965?\\_start=1&pos=1&q=platonist%20ontology&search=quick](http://www.oxfordmusiconline.com.libezproxy.open.ac.uk/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000052965?_start=1&pos=1&q=platonist%20ontology&search=quick)
- Dawkins, R., 1976. *The Selfish Gene*. Oxford: Oxford University Press
- . 1999. *The Extended Phenotype: The Long Reach of the Gene*. Oxford: Oxford University Press
- De Certeau, M., 1984. *The Practice of Everyday Life*. Trans. S.F. Rendall. Berkeley CA; London: University of California Press
- Defraene, P., 2016. "Exploring Post-Internet Music". *Humanhuman*. Accessed online 3 March 2018: <https://humanhuman.com/articles/exploring-post-internet-music>
- DeLanda, M., 2006. *A New Philosophy of Society: Assemblage Theory and Social Complexity*. London: Continuum
- . 2012. "Assemblage Theory, Society, and Deleuze" *European Graduate School Video Lectures*. YouTube Video. Accessed online 4 March 2018: <https://www.youtube.com/watch?v=J-l5e7ixw78>
- . 2016. *Assemblage Theory*. Edinburgh: Edinburgh University Press
- Deleuze, G., 1988a. *Bergsonism*. Trans. Hugh Tomlinson, Barbara Habberjam. New York: Zone Books
- . 1988b. *Foucault*. Trans. Seán Hand. Minneapolis: University of Minnesota Press
- . 1990. *Logic of Sense*. Trans. Mark Lester with Charles Stivale. New York: Columbia University Press
- . 1991. *Empiricism and Subjectivity*. Trans. Constantin V. Boundas. New York: Columbia University Press
- . 1994. *Difference and Repetition*. Trans. P. Patton New York: Columbia University Press
- . 1995. *Negotiations: 1972-1990*. Trans. M. Joughin. New York: Columbia University Press

- Deleuze, G. and F. Guattari, 1983. *Anti-Oedipus*. Trans. Robert Hurley, Mark Seem, and Helen R. Lane. Minneapolis: University of Minnesota Press
- . 1987. *A Thousand Plateaus: Capitalism and Schizophrenia*. Trans. Brian Massumi. London: Continuum
- . 1994. *What is Philosophy?* Trans. Hugh Tomlinson and Graham Burchell III. New York: Columbia University Press
- Deleuze, G and C. Parnet, 2002. *Dialogues II*. Trans. Hugh Tomlinson and Barbara Habberjam. New York: Columbia University Press
- Demers, J.T., 2010. *Listening Through the Noise: The Aesthetics of Experimental Electronic Music*. Oxford: Oxford University Press
- Dennett, D.C., 2017. *From Bacteria to Bach and Back: The Evolution of Minds*. New York; London: Norton
- DeNora, T., 2000. *Music in Everyday Life*. Cambridge: Cambridge University Press
- Derrida, J. 1979. "The Parergon". Trans. C. Owens. *October*, Summer, vol. 9, pp. 3-41
- . 1995. *The Gift of Death*. Trans. David Wills. Chicago; London: University of Chicago Press
- . 1997. *Of Grammatology*. Trans. Gayatri Chakravorty Spivak. Corrected ed. Baltimore; London: Johns Hopkins University Press
- Deutsch, D., 1997. *The Fabric of Reality*. London: Penguin
- . 2012. *The Beginning of Infinity: Explanations that Transform the World*. London: Pelican
- Dipert, R.R., 1980. "The Composer's Intentions: An Examination of Their Relevance for Performance". *The Musical Quarterly*, Apr., vol. 66, no. 2, pp. 205-218
- Dobson, M.C., 2010. "New Audiences for Classical Music: The Experiences of Non-attenders at Live Orchestral Concerts". *Journal of New Music Research*, 06, vol. 39, no. 2, pp. 111-124
- Dobson, M.C. and S.E. Pitts, 2011. "Classical Cult or Learning Community? Exploring New Audience Members' Social and Musical Responses to First-time Concert Attendance". *Ethnomusicology Forum*, 12, vol. 20, no. 3, pp. 353-368
- Dodd, J., 2007. *Works of Music: An Essay in Ontology*. Oxford: Oxford University Press
- . 2013. "Adventures in the metaontology of art: local descriptivism, artefacts and dreamcatchers". *Philos Stud (2013)* 165, pp. 1047-1068
- Donald, M., 1991. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge MA: Harvard University Press.
- Dosse, F., 2010. *Gilles Deleuze & Felix Guattari: Intersecting Lives*. New York; Chichester: Columbia University Press
- Doubleday, V., 2008. "Sounds of power: An overview of musical instruments and gender". *Ethnomusicology Forum*, 06/01; June, 2008, vol. 17, no. 1, pp. 3-32
- Douglas-Jones, R. and S. Sariola, 2009. "Rhizome Yourself: Experiencing Deleuze and Guattari from Theory to Practice". *Rhizomes* Issue 19. Accessed online 4 March 2018: <http://www.rhizomes.net/issue19/sariola.html>
- Drake, N., 2018. "Universe's First Stars Detected? Get the Facts". *National Geographic*. Accessed online 6 March 2018: <https://news.nationalgeographic.com/2018/02/first-stars-universe-big-bang-edges-space-science/>



- Dredge, S., 2016a. "AI could be the music industry's next Napster moment – but much bigger". *Musically*. Accessed online 3 March 2018: <http://musically.com/2016/11/24/ai-could-be-the-music-industrys-next-napster-moment-but-much-bigger/>
- . 2016b. "Imagine a music industry with 950m mobile listeners by 2022". *Musically*. Accessed online 3 March 2018: <http://musically.com/2016/10/04/imagine-a-music-industry-with-950m-mobile-listeners-by-2022/>
- Dreyfus, L., 1983. "Early Music Defended against Its Devotees: A Theory of Historical Performance in the Twentieth Century". *The Musical Quarterly*, Summer, vol. 69, no. 3, pp. 297-322
- Driver, R.D., 2010. "You Never Give Me Your Money: The Beatles After the Breakup by Peter Doggett". *Journal of Popular Culture*, 12, vol. 43, no. 6, pp. 1305-1307
- Eden, D. and M. Saremba eds., 2009. *The Cambridge companion to Gilbert and Sullivan*. Cambridge: Cambridge University Press
- Eisenberg, E., 2005. *The Recording Angel: Music, Records and Culture from Aristotle to Zappa*. 2nd ed. New Haven, Conn; London: Yale University Press
- Eno, B., 2016. "Culture Now: Brian Eno". *ICA*. Accessed online 3 March 2018: <https://www.ica.art/whats-on/culture-now-brian-eno>
- Ericsson, S., 2011. "The Recorded Music Industry and the Emergence of Online Music Distribution: Innovation in the Absence of Copyright (Reform)". *George Washington Law Review*, 09, vol. 79, no. 6, pp. 1783-1798
- Evans, R.J., 2001. *In Defence of History*. New ed. London: Granta
- Fager, C.E., 1969. "The Apple Corps four". *Christian Century*, 03/19, vol. 86, no. 12, pp. 386-388
- Feinberg, W., 2006. "Philosophical Ethnography: or, How Philosophy and Ethnography Can Live Together in the World of Educational Research" *Educational Studies in Japan: International Yearbook* No.1, December, 2006, pp.5-14
- Finnegan, R., 1989. *The Hidden Musician: Music-making in an English Town*. Cambridge: Cambridge University Press.
- Fleming, A. 2006. "Post-processual landscape archaeology: a critique". *Cambridge Archaeological Journal* 16, 267-80
- Fodor, J.A., 1987. *Psychosemantics: The Problem of Meaning in the Philosophy of Mind*. Cambridge, Mass.: MIT Press
- . 2010. *LOT 2: The Language of Thought Revisited*. Oxford: Oxford University Press.
- Foucault, M., 1969. *L'Archéologie du Savoir*. Paris: Gallimard
- , 1972. *The Archaeology of Knowledge and Discourse on Language*. Trans. A.M. Sheridan Smith. New York: Pantheon
- . 1973. *The Birth of the Clinic. An Archaeology of Medical Perception*. Trans. A.M Sheridan. London: Routledge
- Frabetti, F., 2015. *Software Theory: A Cultural Philosophical Study*. London: Rowman & Littlefield
- Frankish, K., 2016. "The mind isn't locked in the brain but extends far beyond it". *Interalia Magazine*. Accessed online 4 March 2018: <https://www.interaliamag.org/articles/keith-frankish-the-mind-isnt-locked-in-the-brain-but-extends-far-beyond-it/>

- . 2017. "Why panpsychism fails to solve the mystery of consciousness". *Aeon*. Accessed online 4 March 2018: <https://aeon.co/ideas/why-panpsychism-fails-to-solve-the-mystery-of-consciousness>
- Gale, K., J. Speedy and J. Wyatt, 2010. "Gatecrashing the Oasis? A Joint Doctoral Dissertation Play". *Qualitative Inquiry*, 16(1), pp. 21–28
- Gallope, M., 2008. "Is There a Deleuzian Musical Work?" *Perspectives of New Music*. Vol. 46, No. 2 (Summer 2008), pp. 93-129
- Galloway, R., 2014. "The Universe of Things — by Steven Shaviro". *Culture and Communication Blog*. Accessed online 4 March 2018: <http://cultureandcommunication.org/galloway/the-universe-of-things>
- Glendinning, S., 2011. *Derrida: A Very Short Introduction*. Oxford: Oxford University Press
- Goehr, L., 2007. *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music*. Rev. ed. New York; Oxford: Oxford University Press
- . 2008. *Elective Affinities: Musical Essays on the History of Aesthetic Theory*. New York; Chichester: Columbia University Press
- Goodman, N., 1968. *Languages of Art; An Approach to a Theory of Symbols*. Indianapolis: Bobbs-Merrill
- Gould, G., 1987. *The Glenn Gould Reader*. T. Page ed., London: Faber and Faber
- Gourley, K.A., 1978. "Towards a Reassessment of the Ethnomusicologist's Role in Research". *Ethnomusicology: Journal of the Society for Ethnomusicology*, vol. 22, pp. 1-35
- Gourvish, T. and K. Tennent, 2010. "Peterson and Berger revisited: Changing Market Dominance in the British Popular Music Industry, c.1950-80". *Business History*, 04, vol. 52, no. 2, pp. 187-206
- Gracyk, T., 1997. "Listening to Music: Performances and Recordings". *The Journal of Aesthetics and Art Criticism*, Spring, vol. 55, no. 2, Perspectives on the Arts and Technology, pp. 139-150
- . 2015. "Musical Concerns: Essays in Philosophy of Music — Jerrold Levinson. Review." *Notre Dame Philosophical Reviews*. Accessed online 4 March 2018: <https://ndpr.nd.edu/news/musical-concerns-essays-in-philosophy-of-music/>
- Grant, M.J., and I. Misch, eds., 2016. *The Musical Legacy of Karlheinz Stockhausen: Looking Back and Forward*. Hofheim: Wolke Verlag
- Grasmayer, B., 2016a. "Projecting Trends: What These 4 Music Startups Reveal About the Future of Music". *Synchtank*. Accessed online 3 March 2018: <https://blog.synchtank.com/projecting-trends-what-these-4-music-startups-reveal-about-the-future-of-music>
- . 2016b. "4 Products that Show the Future of Music". *Music X Tech X Future*. Accessed online 3 March 2018: <http://www.musicxtechxfuture.com/2016/07/18/4-products-that-show-the-future-of-music/>
- . 2016c. "Music's Role In A Transhumanist Future". *Synchblog* (Hyperbot). Accessed online 5 March 2018: <http://www.hypebot.com/hypebot/2016/11/musics-role-in-transhumanist-future.html>
- . 2016d. "Projecting Trends: Moving Beyond the Static Music Experience". *Synchblog*. Accessed online 5 March 2018: <https://www.synchblog.com/projecting-trends-moving-beyond-the-static-music-experience/>

- . 2017a. "Streaming wars for superfans". *Getrevue*. Accessed online 4 March 2018: <https://www.getrevue.co/profile/basgras/issues/streaming-wars-for-superfans-how-generative-music-works-blockchain-startups-to-watch-82903>
- . 2017b. "Four of the Biggest Opportunities for the Future of Music Consumption". *Music Tech Future*. Accessed online 4 March 2018: <http://www.musicxtechxfuture.com/2017/08/13/four-of-the-biggest-opportunities-for-the-future-of-music-consumption/>
- . 2017c. "Online Music is About to Experience Another MySpace Moment". *Music Tech Future*. Accessed online 4 March 2018: <http://www.musicxtechxfuture.com/2017/04/17/online-music-is-about-to-experience-another-myspace-moment/>
- Green, O., 2011. "Agility and Playfulness: Technology and skill in the performance ecosystem". *Organised Sound* 16(2): pp. 134–144
- Grey, T.S. ed., 2008. *The Cambridge Companion to Wagner*. Cambridge: Cambridge University Press.
- Grice, H.P., 1989. *Studies In The Way of Words*. Cambridge, Mass.: Harvard University Press.
- Griffin, A., 2017. "Facebook's Artificial Intelligence Robots Shut Down After They Start Talking to Each Other in Their Own Language". *Independent*. Accessed online 5 March 2018: <http://www.independent.co.uk/life-style/gadgets-and-tech/news/facebook-artificial-intelligence-ai-chatbot-new-language-research-openai-google-a7869706.html>
- Griffiths, N.K., 2011. "The Fabric of Performance: Values and Social Practices of Classical Music Expressed Through Concert Dress Choice". *Music Performance Research*, 10, vol. 4, pp. 30-48
- Grillmeier, A., 1975. *Christ in Christian Tradition*. Atlanta: John Knox Press
- Gunkel, H., A. Hamed and S. O'Sullivan, eds., 2017. *Futures and Fictions*. London: Repeater Books
- Guss, F. 2001. Drama performance in children's play culture: The possibilities and significances of form. Report 6. Unpublished PhD dissertation, University of Trondheim.
- Gutting, G., 2005. *Foucault: A Very Short Introduction*. Oxford; New York: Oxford University Press
- Hacker P.M.S., 1997. *Wittgenstein: On Human Nature*. R. Monk and F. Raphael eds., London: Phoenix
- Hachoen, R. and N. Wagner, 1997. "The Communicative Force of Wagner's Leitmotifs: Complementary Relationships between Their Connotations and Denotations". *Music Perception*, vol. 14, no. 4, pp. 445-475
- Hacking, I., 1979. "Michel Foucault's Immature Science". *Noûs*, Mar., vol. 13, no. 1, pp. 39-51
- . 2004. *Historical Ontology*. Cambridge, MA: Harvard University Press
- Hall, S., 2014. "Song for a future generation: Music predictions for 2020". *Virgin*. Accessed online 3 March 2018: <https://www.virgin.com/music/song-for-a-future-generation-music-predictions-for-2020>
- Hallam S., L. Rogers and A. Creech, 2008. "Gender Differences in Musical Instrument Choice". *International Journal of Music Education*, 01/01, vol. 26, no. 1, pp. 7-19
- Hamilton, A., 2000. "The Art of Improvisation and the Aesthetics of Imperfection". *British Journal of Aesthetics*, 01, vol. 40, no. 1, pp. 168-182

- . 2003. "The Art of Recording and the Aesthetics of Perfection". *The British Journal of Aesthetics*, October 01, vol. 43, no. 4, pp. 345-362
- Hanfling, O. 1987. *The Quest for Meaning*. Oxford: Basil Blackwell in association with the Open University
- . ed., 1992. *Philosophical Aesthetics: An Introduction*. Blackwell in association with the Open University
- Hanslick, E. 1854 (1891). *Vom Musicalisch Schönen (On the Musically Beautiful)* Trans. G. Payzant, 1986. Indianapolis IN: Hackett Publishing Company
- Harman, G., 2005. *Guerilla Metaphysics: Phenomenology and the Carpentry of Things*. Chicago: Open Court
- Harper, A., 2010. *Infinite Music*. Alresford, UK: Zero Books
- . 2016. "How Internet Music is Frying Your Brain". *Popular Music* (2017) Volume 36/1. pp. 86-97
- Harper-Scott, J.P.E., 2012. *The Quilting Points of Musical Modernism: Revolution, Reaction, and William Walton*. Cambridge: Cambridge University Press
- Harris, D., 2008. "Branching of fungal hyphae: regulation, mechanisms and comparison with other branching systems". *Mycologia*, 100(6), pp. 823 – 832.
- Harrison, C. and P. Wood eds., 1992. *Art in Theory, 1900-1990: An Anthology of Changing Ideas*. Oxford: Blackwell
- Hartmann, A., 2003. *Claude Debussy As I Knew Him and Other Writings of Arthur Hartmann*. S. Hsu, S. Grolnic and M.A. Peters eds., Rochester, NY; Woodbridge: University of Rochester Press; Boydell & Brewer
- Hegarty, P., 2007. *Noise*. New York; London: Continuum.
- . 2015. *Rumour and Radiation: Sound in Video Art*. London; New York: Bloomsbury
- Heidegger, M., 1977. *The Question Concerning Technology, and Other Essays*. Trans. W. Lovitt ed., New York; London: Harper and Row
- Heile, B. ed., 2009. *The Modernist Legacy: Essays on New Music*. Farnham: Ashgate.
- Heim, M., 1993. *The Metaphysics of Virtual Reality*. New York: Oxford University Press
- Hellier-Tinoco, R., 2003. "Experiencing People: Relationships, Responsibility and Reciprocity". *British Journal of Ethnomusicology*, vol. 12, no. 1, pp. 19-34
- Herbert, T. and Associated Board of the Royal Schools of Music (Great Britain), 2001. *Music in Words: A Guide to Researching and Writing About Music*. London: Associated Board of the Royal Schools of Music
- Hermant, J. and G. Richter eds., 2006. *Sound Figures of Modernity: German Music and Philosophy*. Madison, Wis.; London: University of Wisconsin Press
- Hess, P., 2017. "Researchers Enable People to Compose Music With Only Their Brain". Accessed online 3 March 2018: <https://www.inverse.com/article/36349-music-composed-brain-computer-interface>
- Hewitt, T.W., 2013. *The Mycelium as a Metaphor for the Metaphysical Meaning Space of Music*. MA(music) dissertation. The Open University
- . 2015. "Report, 2nd Royal Musical Association, Music and Philosophy Study Group's Workshop on The Philosophy of Human+Computer Music". *Philosophy of*

- human+computer music*. Accessed online 8 March 2018: <https://humancomputermusicphilosophy.wordpress.com/events/workshop27may2015/report/>
- Hillis, D., 2016. "The Enlightenment is Dead, Long Live the Entanglement". *JoDS*. Accessed online 4 March 2018: <https://jods.mitpress.mit.edu/pub/enlightenment-to-entanglement>
- Hodder, I., 2012. *Entangled: An Archaeology of the Relationships Between Humans and Things*. Malden, MA: Wiley-Blackwell
- . 2014. "The Entanglements of Humans and Things: A Long-Term View". *New Literary History*, Volume 45, Number 1, Winter 2014, pp. 19-36
- Hofsess, B.A., and J.L. Sonenberg, 2013. "Enter: Ho/rhizoanalysis". *Cultural Studies ↔ Critical Methodologies* XX(X). pp. 1-10
- Hofstadter, D.R., 2000. *Gödel, Escher, Bach: An Eternal Golden Braid*. 20th-anniversary ed. London: Penguin
- Hofstadter, D.R. and D.C. Dennett, 1981. *The Mind's I: Fantasies and Reflections on Self and Soul*. New York: Basic Books
- Honan, E.M., 2001. *(Im)plausibilities: A rhizo – textual analysis of the Queensland English Syllabus*. PhD Thesis, James Cook University
- . 2004. "(Im)plausibilities: A rhizo-textual analysis of policy texts and teachers' work". *Educational Philosophy and Theory*, Vol. 36, No. 3, pp.267-281
- . 2007. "Writing a rhizome: an (im)plausible methodology". *International Journal of Qualitative Studies in Education*, Volume 20: 5, pp. 531-546
- Honan, E. and D. Bright, 2016. "Writing a thesis differently". *International Journal of Qualitative Studies in Education*, 29:5, pp. 731-743
- Honderich, T and M. Burnyeat eds., 1979. *Philosophy As It Is*. Harmondsworth: Penguin
- Høstaker, R., 2014. *A Different Society Altogether: What Sociology Can Learn from Deleuze, Guattari, and Latour*. Newcastle-upon-Tyne: Cambridge Scholars Publishing
- Hoy, D.C., ed., 1986. *Foucault: A Critical Reader*. Oxford: Blackwell
- Hu, C., 2017. "Should Spotify Try to Become the 'Netflix Of Music'? Not So Fast". *Billboard*. Accessed online 4 March 2018: <https://www.billboard.com/articles/business/7957097/should-spotify-become-netflix-music-not-so-fast>
- Hughes, R., 1990. *Nothing If Not Critical: Selected Essays on Art and Artsits*. London: Harvill
- Hugill, A., 2012. *The Digital Musician*. Abingdon; New York: Routledge
- Huhn, T., 2004. *The Cambridge Companion to Adorno*. Cambridge, UK; New York: Cambridge University Press
- Hutson, M., 2017. "How Google is making music with artificial intelligence". *Science*. Accessed online 3 March 2018: <http://www.sciencemag.org/news/2017/08/how-google-making-music-artificial-intelligence>
- Hylton, P., 2018. "Willard van Orman Quine" *The Stanford Encyclopedia of Philosophy*, ed. N. Zalta. Accessed online 3 March 2018 <https://plato.stanford.edu/archives/spr2018/entries/quine/>
- Ingarden, R., A. Czerniawski, and J.G. Harrell, 1986. *The Work of Music and the Problem of its Identity*. Berkeley: University of California Press



- Inglis, I. ed., 1999. *The Beatles, Popular Music and Society: A Thousand Voices*. Basingstoke: Macmillan
- . 2000. "The Beatles Are Coming!" Conjecture and Conviction in the Myth of Kennedy, America, and the Beatles". *Popular Music & Society*, Summer 2000, vol. 24, no. 2, pp. 93-110
- . 2005. "The Continuing Story of John Lennon". *Critical Studies in Media Communication*, 12, vol. 22, no. 5, pp. 451-467
- Jackendoff, R., 2012. *A User's Guide to Thought and Meaning*. Oxford: Oxford University Press
- Jackson, A.Y., 2003. "Rhizovocality". *Qualitative Studies in Education*. Vol. 16, No. 5, pp. 693-710
- James, I., 2012a. *The New French Philosophy*. Cambridge: Polity
- . 2012b. "Philosophy, Aesthetics and Technics" Seminar. *Vimeo* video. Accessed online 4 March 2018: <https://vimeo.com/43062654>
- James, W., 1912 (1996). *Essays in Radical Empiricism*. Lincoln NE: University of Nebraska Press
- Jarman, D., 1995. *Chroma: A Book of Colour*. London: Vintage
- Jenkins, K., 1995. *On "What is History?": from Carr and Elton to Rorty and White*. London; New York: Routledge.
- Johnson, D., 2015. "Composing Music With Recurrent Neural Networks". *Hexahedria*. Accessed online 3 March 2018: <http://www.hexahedria.com/2015/08/03/composing-music-with-recurrent-neural-networks/>
- Johnson, M., 2007. *The Meaning of the Body: Aesthetics of Human Understanding*. Chicago: University of Chicago Press (Kindle Edition)
- Johnston, M., 1987. "Human Beings". *The Journal of Philosophy*, Feb., vol. 84, no. 2, pp. 59-83
- Joseph, B.W. 2011. "Biomusic" *Grey Room*. 45, Fall 2011. MIT Press Journals, pp. 128-150
- Joyce, C and A. Unterberger, 2015. "Where Will You Be in 15 Years? Spotify, BOSE, Third Man Records, and More Look Ahead". *Spin*. Accessed online 3 March 2018: <https://www.spin.com/2015/10/future-of-music-spotify-bose-record-store-day/>
- Jupp, V., 2006. *The SAGE Dictionary of Social Research Methods*. London: SAGE
- Juslin, P.N., S. Liljeström, P. Laukka, D. Västfjäll, and L. Lundqvist, 2011. "Emotional Reactions to Music in a Nationally Representative Sample of Swedish Adults: Prevalence and Causal Influences". *Musicae Scientiae*, July 01, vol. 15, no. 2, pp. 174-207
- Kelly, S., 2017. "Brian Eno's app Reflection uses science to create music". *BBC News*. Accessed online 3 March 2018: <http://www.bbc.co.uk/news/av/technology-39506989/brian-eno-s-app-reflection-uses-science-to-create-music>
- Kenyon, N., ed., 2002. *Authenticity and Early Music*. Oxford: Oxford University Press
- Kivy, P., 1990. *Music Alone: Philosophical Reflections on the Purely Musical Experience*. Ithaca, NY: Cornell University Press
- . 2007. *Music, Language, and Cognition and Other Essays in the Aesthetics of Music*. Oxford: Clarendon
- . 2009. *Antithetical Arts: On the Ancient Quarrel Between Literature and Music*. Oxford: Oxford University Press

- Knappett, C and L. Malfouris, eds., 2008. *Material Agency: Towards an Non-Anthropocentric Approach*. London: Springer
- Kolb, B.M., 2001. "The Effect of Generational Change on Classical Music Concert Attendance and Orchestras' Responses in the UK and US". *Cultural Trends*, 03, vol. 11, no. 41, pp. 1-35
- Koopman, C. and S. Davies, 2001. "Musical Meaning in a Broader Perspective". *Journal of Aesthetics & Art Criticism*, 03, vol. 59, no. 3, pp. 261-280
- Kosko, B., 1994. *Fuzzy Thinking: The New Science of Fuzzy Logic*. London: Flamingo
- Kozinets, R.V., 2010. *Netnography: Doing Ethnographic Research Online*. London: SAGE
- Kramer, L., 2001. *Musical Meaning: Toward a Critical History*. Berkeley, Calif.; London: University of California Press
- . 2011. *Interpreting Music*. Berkeley, Calif.; London: University of California Press
- Krausz, M. ed., 1993. *The Interpretation of Music: Philosophical Essays*. Oxford: Clarendon Press
- Kraut, R., 2007. *Artworld Metaphysics*. Oxford: Oxford University Press
- Krumhansl, C.L., 1998. "Topics in Music: An Empirical Study of Memorability, Openness, and Emotion in Mozart's String Quintet in C Major and Beethoven's String Quartet in A Minor". *Music Perception*, Fall 1998, vol. 16, no. 1, pp. 119-134
- Kurzweil, R., 2005. *The Singularity Is Near: When Humans Transcend Biology*. London: Duckworth
- Kusek, D. and G. Leonhard, 2005. *The Future of Music: Manifesto for the Digital Revolution*. S.G. Lindsay, ed.. Boston, MA: Berklee Press. (Kindle edition)
- Lakoff, G. and M. Johnson, 1999. *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books
- . 2003. *Metaphors We Live By*. Chicago, Ill.; London: University of Chicago Press
- Lather, P. A., 2007. "Postbook: Working the ruins of feminist ethnography". In *Getting lost: Feminist efforts toward a double(d) science* (pp. 135-150). Albany, NY: State University of New York Press
- Latour, B., 2005. *Reassembling The Social: An Introduction to Actor-Network-Theory*. Oxford: Oxford University Press
- Law, J., 2003. "Making a Mess with Method" The Centre for Science Studies, Lancaster University. Accessed online 4 March 2018: <http://www.lancaster.ac.uk/fass/resources/sociology-online-papers/papers/law-making-a-mess-with-method.pdf>
- Lawson, C., 1999. *The Historical Performance of Music: An Introduction*. R. Stowell ed., Cambridge: Cambridge University Press.
- Leavitt, J., 2010. "Mytheme and Motif: Lévi-Strauss and Wagner". *Intersections: Canadian Journal of Music*, 04, vol. 30, no. 1, pp. 95-116
- Lebedva, K., 2009. "Review article: Bernard Stiegler, *Technics and Time, 2: Disorientation* Stanford University Press, 2008". *Parrhesia*, No. 7, pp. 81-85
- Lee, T., 2016. "Making a Ceramics 3D Printer With Taekyeom Lee - 3D Printing". *3D Printing*. Accessed online 3 March 2018: <https://3dprinting.com/ceramic/making-a-ceramics-3d-printer-with-taekyeom-lee/>

- Lemke, J.L., 1995. *Textual politics: discourse and social dynamics*. Taylor & Francis, London.
- Leonhard, G., 2016. *Technology vs. Humanity*. Kindle Edition. London: Fast Future Publishing.
- Le Poidevin, R., 2007. *The Images of Time: An Essay on Temporal Representation*. Oxford: Oxford University Press
- Le Poidevin, R. and M. MacBeath eds., 1993. *The Philosophy of Time*. Oxford: Oxford University Press
- Lepore, E. ed., 1989. *Truth and Interpretation: Perspectives on the Philosophy of Donald Davidson*. Oxford: Blackwell
- Leroi-Gourhan, A. 1993. *Gesture and Speech*. Trans. Anna Bostock Berger. Cambridge MA: MIT Press
- Levin, T.Y., 1990. "For the Record: Adorno on Music in the Age of Its Technological Reproducibility". *October*, Winter, vol. 55, pp. 23-47
- Levine, R., 2017. "Turn Down for This! How Mood Music Is Changing Streaming". *Billboard*. Accessed online 4 March 2018: <https://www.billboard.com/biz/articles/news/digital-and-mobile/7889996/turn-down-for-this-how-mood-music-is-changing-streaming>
- Levinson, J., 1990. *Music, Art, and Metaphysics: Essays in Philosophical Aesthetics*. Ithaca, N.Y.: Cornell University Press
- . 2015. *Musical Concerns: Essays in Philosophy of Music*. New York, NY: Oxford University Press
- Levitin, D.J., 2007. *This Is Your Brain on Music: Understanding a Human Obsession*. London: Atlantic
- Lewis, D.K., 1986. *On the Plurality of Worlds*. Malden, Mass.; Oxford: Blackwell
- Lincoln, S., 2005. "Feeling the Noise: Teenagers, Bedrooms and Music". *Leisure Studies*, 10, vol. 24, no. 4, pp. 399-414
- Livingstone, S.R. and W.F. Thompson, 2009. "The Emergence of Music from the Theory of Mind". *Musicae Scientiae: The Journal of the European Society for the Cognitive Sciences of Music*, 01/01; Special issue, 2009, pp. 83-97
- Lyotard, J., 1991. *The Inhuman: Reflections on Time*. Trans. Geoffrey Bennington and Rachel Bowlby. Cambridge: Polity Press
- MacDonald, I., 2008. *Revolution in the Head: The Beatles' Records and The Sixties*. 2nd rev. ed. London: Vintage
- MacDonald, L., 1993. *1915: The Death of Innocence*. London: Headline
- MacUidhir, C.M., 2007. "Recordings as Performances". *The British Journal of Aesthetics*, July 01, vol. 47, no. 3, pp. 298-314
- Malik, S., C. Cox and J. Jaskey, eds., 2015. *Realism Materialism Art*. Berlin: Sternberg Press
- Malik, S. and A. Avanessian, 2016. *Genealogies of Speculation: Materialism and Subjectivity since Structuralism*. New York; London: Bloomsbury, Kindle edition
- Marcuse, H., 1979. *The Aesthetic Dimension: Toward a Critique of Marxist Aesthetics*. Trans. Erica Sherover and Herbert Marcuse. London: Macmillan
- Margulis, E.H., 2017. "Music is not for ears". *Aeon*. Accessed online 4 March 2018: <https://aeon.co/essays/music-is-in-your-brain-and-your-body-and-your-life>



- Marshall, C., 2016. "A Huge Anthology of Noise & Electronic Music (1920-2007) Featuring John Cage, Sun Ra, Captain Beefheart & More" *Open Culture*. Accessed online 3 March 2018: <http://www.openculture.com/2016/04/a-huge-anthology-of-noise-electronic-music.html>
- Martin, C.B., 2008. *The Mind in Nature*. Oxford: Clarendon Press Inc
- Martinich, A., 2005. *Philosophical Writing: An Introduction*. 3rd ed. Oxford: Blackwell
- Masny, D., 2010. "Rhizoanalysis: nomadic pathways in reading, reading the world and self". Conference presentation, University of Edinburgh. YouTube video. Accessed online 4 March 2018: [https://www.youtube.com/playlist?list=PLXHb68xEG8EAkihCq8ROVYVwmupk\\_4h8](https://www.youtube.com/playlist?list=PLXHb68xEG8EAkihCq8ROVYVwmupk_4h8)
- . 2011. "Multiple Literacies Theory: exploring futures". *Policy Futures in Education Volume 9 Number 4*, pp. 494-504
- . 2013. "Rhizoanalytic Pathways in Qualitative Research". *Qualitative Inquiry*, 19(5) pp. 339–348
- Matravers, D., 2013. *Introducing Philosophy of Art in Eight Case Studies*. Durham: Acumen
- Mautner, T. ed., 1997. *The Penguin Dictionary of Philosophy*. New ed. London: Penguin
- May T., 2005. *Gilles Deleuze: An Introduction*. Cambridge: Cambridge University Press
- McFarland, D., 2008. *Guilty Robots, Happy Dogs: The Question of Alien Minds*. Oxford: Oxford University Press
- McKeown-Green, J., 2008. "Works of Music: An Essay in Ontology - By Julian Dodd". *Philosophical Books*, 10, vol. 49, no. 4, pp. 394-396
- McLean, A., 2018. "Weaving TidalCycles patterns at a TC-1 loom". *Penelope*. Accessed online 5 March 2018: <https://penelope.hypotheses.org/630>
- McLean, A., 2011. *Artist-Programmers and Programming Languages for the Arts*. PhD Thesis, Goldsmiths, University of London. Accessed online 3 March 2018: <http://slab.org/writing/thesis.pdf>
- McLean, A. and G. Wiggins, 2018. "Bricolage Programming in the Creative Arts". *Psychology of Programming Interest Group*, PPIG 2010 - 22nd Annual Workshop. Accessed online 6 March 2018: <http://www.ppig.org/library/paper/bricolage-programming-creative-arts>
- Meillassoux, Q., 2016. "Iteration, Reiteration, Repetition: A Speculative Materialist Analysis of the Sign Devoid of Meaning" in Malik, S. and A. Avanesian, 2016. *Genealogies of Speculation: Materialism and Subjectivity since Structuralism*. Chapter Trans. Robin Mackay and Moritz Gansen. New York; London: Bloomsbury, Kindle edition
- Menary, R. ed., 2010. *The Extended Mind*. Cambridge, Mass.: MIT Press
- Mera, M. and A. Morcom, 2009. "Introduction: Screened Music, Trans-contextualisation and Ethnomusicological Approaches". *Ethnomusicology Forum*, 06, vol. 18, no. 1, pp. 3-19
- Mericks, T., 1998. "There Are No Criteria of Identity Over Time". *Noûs*, Mar., vol. 32, no. 1, pp. 106-124
- Mertens, W., 1983. *American Minimal Music: La Monte Young, Terry Riley, Steve Reich, Philip Glass*. London: Kahn & Averill
- Middleton, R., 1990. *Studying Popular Music*. Milton Keynes: Open University Press
- Midgely, M., 2011. *The Myths We Live By*. Abingdon: Routledge

- Miller, S., 1984. *Experimental Design and Statistics* (Second Edition). Hove; New York: Routledge
- Mlodinow, L., 2008. *The Drunkard's Walk: How Randomness Rules Our Lives*. London: Allen Lane
- Modern Humanities Research Association., 2008. *MHRA Style Guide: A Handbook for Authors, Editors, and Writers of Theses*. G. Price and B. Richardson eds., 2nd ed. London: Modern Humanities Research Association
- Moisala, P., T. Lappänen, M. Tiainen and H. Väättäin, eds., 2017. *Musical Encounters with Deleuze and Guattari*. New York; London: Bloomsbury
- Monelle, R., 1992. *Linguistics and Semiotics in Music*. Churchill, Phil.: Harwood Academic
- Monk, R., 1991. *Ludwig Wittgenstein: The Duty of Genius*. London: Vintage
- More, M. and N. Vita-More, 2013. *The Transhumanist Reader: Classical and Contemporary Essays on the Science, Technology, and Philosophy of the Human Future*. Chichester: Wiley-Blackwell
- Mooney, A. and B. Evans, 2007. *Globalization: The Key Concepts*. Routledge
- Moss, R., 2015. "Creative AI: Computer composers are changing how music is made". *New Atlas*. Accessed online 3 March 2018: <https://newatlas.com/creative-artificial-intelligence-computer-algorithmic-music/35764/>
- Murdoch, I., 1971. *The Sovereignty of Good*. London; New York: Routledge
- . 1992. *Metaphysics as a Guide to Morals*. London: Penguin
- Nancy, J-L., 1997. *The Sense of the World*. Trans. J.S. Librett. Minneapolis MN: University of Minnesota Press.
- . 2000. *Being Singular Plural*. Trans. Robert D. Richardson and Anne E. O'Byrne. Stanford CA: Stanford University Press
- . 2007. *Listening*. Trans. Charlotte Mandell. New York: Fordham University Press
- Naughtie, J., 2008. *The Making of Music: A Journey With Notes*. London: John Murray
- Ngui, M., 2015. "Thousand Plateaus" Pen and ink drawings. *Bumblenut Pictures*. Accessed online 4 March 2018: <http://www.bumblenut.com/drawing/art/plateaus/>
- Niblock, H., 1999. "Musical Recordings and Performances: A Response to Theodore Gracyk". *The Journal of Aesthetics and Art Criticism*, Summer, vol. 57, no. 3, pp. 366-368.
- Nixon, M., 2016. "G Douglas Barrett: Beyond Sound. The artist and theorist on the possibilities for music after sound." *Guernica*. Accessed online 4 March 2018: <https://www.guernicamag.com/g-douglas-barrett-beyond-sound/>
- Noe, K., 2013. "Review Essay: Daniel W. Smith, *Essays on Deleuze* (Edinburgh: Edinburgh University Press, 2012)". *Journal of French and Francophone Philosophy - Revue de la philosophie française et de langue française*, Vol XXI, No 1 (2013) pp. 161-172
- Norris, C., 2006. *Platonism, Music and The Listener's Share*. London: Continuum
- Nussbaum, C., 2003. "Kinds, Types, and Musical Ontology". *Journal of Aesthetics & Art Criticism*, 06, vol. 61, no. 3, pp. 273-291
- . 2007. *The Musical Representation: Meaning, Ontology, and Emotion*. Cambridge, Mass.; London: MIT
- Nusselder, A., 2009. *Interface Fantasy: A Lacanian Cyborg Ontology*. Cambridge, Mass.; London: MIT Press

- O'Callaghan, C., 2007. *Sounds: A Philosophical Theory*. Oxford: Oxford University Press
- O'Hear, A., ed., 2003. *Minds and Persons*. Cambridge: Cambridge University Press
- Olson, E.T., 2002. "What Does Functionalism Tell Us about Personal Identity?". *Noûs*, Dec., vol. 36, no. 4, pp. 682-698
- Osborne, P., 2013. *Anywhere or Not at All: Philosophy of Contemporary Art*. London: Verso
- O'Sullivan, S., 2006. *Art Encounters Deleuze and Guattari: Thought Beyond Representation*. Basingstoke: Palgrave
- . 2010. "From Aesthetics to the Abstract Machine: Deleuze, Guattari and Contemporary Art Practice" Book chapter in Zepke, S. and S. O'Sullivan, 2010 (see below). <https://www.simonosullivan.net/articles/aesthetics-to-the-abstract-machine.pdf>
- Parfit, D., 1971. "Personal Identity". *The Philosophical Review*, Jan., vol. 80, no. 1, pp. 3-27
- Parr, A. ed., 2010. *The Deleuze Dictionary*. Rev. ed. Edinburgh: Edinburgh University Press
- Paynter, R. ed., 1992. *Companion to Contemporary Musical Thought*. London: Routledge
- Pears, D., 2006. *Paradox and Platitude in Wittgenstein's Philosophy*. Oxford: Clarendon
- Penrose, R., 2004. *The Road to Reality: A Complete Guide to the Laws of the Universe*. London: Jonathan Cape
- Peyre, M. and G. Rugg, 2004. *The Unwritten Rules of PhD Research*. Maidenhead: Open University Press
- Petzold, C., 2000. *Code: The Hidden Language of Computer Hardware and Software*. Redmond WA: Microsoft Press
- Philip, R., 2004. *Early Recordings and Musical Style: Changing Tastes in Instrumental Performance, 1900-1950*. Cambridge: Cambridge University Press
- Philosophy of human+computer music, 2015. "Report, 2nd Royal Musical Association, Music and Philosophy Study Group's Workshop on The Philosophy of Human+Computer Music". Accessed online 8 March 2018: <https://humancomputermusicphilosophy.wordpress.com/events/workshop27may2015/report/>
- Pierce, D., 2015. "Inside Spotify's Hunt for the Perfect Playlist". *Wired*. Accessed online 3 March 2018: <https://www.wired.com/2015/07/spotify-perfect-playlist/>
- Pinker, S., 1994. *The Language Instinct : The New Science of Language and Mind*. London: Penguin
- . 1998. *How The Mind Works*. London: Allen Lane
- Pinto, T.R., 2016. "Our changing relationship with music and its new practical function". *Music Tech Future*. Accessed online 5 March 2018: <https://medium.com/music-x-tech-x-future/our-changing-relationship-with-music-and-its-new-practical-function-32bd0e56eac>
- Popyk, B., 2011. "Big Profits From Small Market Niches". *Music Trades*, 10, vol. 159, no. 9, pp. 68-68
- Poster, M. and D. Savat, eds., 2009. *Deleuze and New Technology*. Edinburgh: Edinburgh University Press
- Potter, S., 2006. *Doing Postgraduate Research*. London: SAGE
- Prior, N., 2008. "Putting a Glitch in the Field: Bourdieu, Actor Network Theory and Contemporary Music". *Cultural Sociology*, November 01, vol. 2, no. 3, pp. 301-319

Radical Culture Research Collective (RCRC), 2007. "A Very Short Critique of Relational Aesthetics" *Transform*. Accessed online 4 March 2018: <http://transform.eipcp.net/correspondence/1196340894/#redir>

Raphael, F. and R. Monk eds., 2001. *The Great Philosophers*. London: Phoenix

Reichenbach, H., 1957. *The Philosophy of Space and Time*. Dover Publications; Constable

Revoy, S.L., 2018. "On Arbormosis: Becoming-Cyborg, Machinic Subjection, and the Ethico-Aesthetic of User-Friendly Design." *Deleuze and Guattari Studies*, Vol 12, issue 4, pp. 572-593

Reynolds, J. and J. Roffe eds., 2004. *Understanding Derrida*. New York ; London: Continuum

Rhedding-Jones, J., 1996. "Researching early schooling: poststructural practices and academic writing in an ethnography". *British Journal of Sociology of Education*, vol. 17. no. 1, pp. 21–37

Rice, P. and P. Waugh, 2001. *Modern Literary Theory: A Reader*. 4th ed. London; New York: Arnold; Co-published in the United States of America by Oxford University Press

Rice, T., 2014. *Ethnomusicology: A Very Short Introduction*. Oxford: Oxford University Press

Riddle, S., D. Bright and E. Honan. 2018. *Writing with Deleuze in the Academy: Creating Monsters*. Singapore: Springer

Ridley, A. 2003. "Against Musical Ontology". *The Journal of Philosophy*, Apr., vol. 100, No. 4, pp. 203-220

Ringsmut, M., 2018. "Musical cyborgs as social beings – reflections on popular music production and translations of the social in two recording environments in Cologne". In Alisch, S., Binas-Preisendörfer, S, and Jauk, W., *Darüber hinaus ... Populäre Musik und Überschreitung(en)*, *Proceedings 2. IASPM D-A-CH Konferenz/Graz 2016*. Oldenburg: BIS-Verlag der Carl von Ossietzky Universität Oldenburg. pp. 149-161

Roads, C., 2015. *Composing Electronic Music: A New Aesthetic*. Oxford: Oxford University Press

Roberts, B., 2012. "Technics, Individuation and Tertiary Memory: Bernard Stiegler's challenge to media theory". *New Formations* 77, pp. 8–20

Robinson, K.S., 1999. "Holywelkin's Orchestra". Chapter in *The Memory of Whiteness*. Accessed through *Museum of Imaginary Musical Instruments Blog*. Accessed online 4 March 2018: <http://imaginaryinstruments.org/holywelkins-orchestra/>

———. 2018. Kim Stanley Robinson(.info) Accessed online 12 March 2018: <http://kimstanleyrobinson.info/node/343>

Roden, D., 2010. "Sonic Art and the Nature of Sonic Events". *Review of Philosophy and Psychology*, March 2010, Vol 1, Issue 1, pp. 141-156

———. 2015. *Posthuman Life: Philosophy at the Edge of the Human*. Abingdon; New York: Routledge

———. 2016. "Reality Chunking: Review of DeLanda's Philosophy and Simulation". *Enemyindustry Blog*. Accessed online 4 March 2018: <https://enemyindustry.wordpress.com/2016/11/20/6729/>

Roholt, T., "On the Divide: Analytic and Continental Philosophy of Music ". *The Journal of Aesthetics and Art Criticism*, Volume 75, Issue 1 Winter 2017 pp. 49–58

- Roller, M., 2018. "What is Your Meaning of "Qualitative Research"?" . *Research Design Review Blog*. Accessed online 4 March 2018: <https://researchdesignreview.com>
- Rosel, M., 2017. "Eduardo R. Miranda: deciphering the possibilities of machine-made creativity ". *CLOT Magazine*. Accessed online 3 March 2018: <http://www.clotmag.com/eduardomiranda>
- Ross, A., 2007. *The Rest is Noise: Listening to the Twentieth Century*. 1st ed. New York: Farrar, Straus and Giroux
- Sacks, O., 2007. *Musophilia: Tales of Music and the Brain*. London: Picador
- Said, E.W., 2008. *Music at the Limits: Three Decades of Essays and Articles on Music*. London: Bloomsbury
- Samim, 2017. "Musical Novelty Search: Evolutionary Algorithms + Ableton Live". *Medium*. Accessed online 3 March 2018: <https://medium.com/@samim/musical-novelty-search-2177c2a249cc>
- Samuels, R., 1995. *Mahler's Sixth Symphony: A Study in Musical Semiotics*. Cambridge: Cambridge University Press
- Schafer, R.M., 1994. *The Soundscape: Our Sonic Environment and the Tuning of the World*. Rochester, Vt.: Destiny Books
- Scheurich, J. J., 1997, *Research method in the postmodern*, London: Falmer Press
- Scruton, R., 1997. *The Aesthetics of Music*. Oxford: Clarendon
- . 2009a. *Beauty*. Oxford ; New York: Oxford University Press
- . 2009b. *Understanding Music: Philosophy and Interpretation*. London: Continuum.
- . 2015. *Fools, Frauds and Firebrands: Thinkers of the New Left*. New York; London: Bloomsbury
- . 2016. *The Ring of Truth: The Wisdom of Wagner's Ring of the Nibelung*. London: Penguin
- . 2017. "The Music of the Future". *Future Symphony Institute*. Accessed online 4 March 2018: <http://www.futuresymphony.org/the-music-of-the-future/>
- Searle, J.R., D.C. Dennett, and D.J. Chalmers, 1997. *The Mystery of Consciousness*. 1st ed. New York: New York Review of Books
- Sellers, M., 2009. *Re(con)ceiving children in curriculum: Mapping (a) milieu(s) of becoming*. PhD Thesis, University of Queensland.
- . 2013. *Young Children Becoming Curriculum: Deleuze, Te Whāriki and curricular understandings (Contesting Early Childhood)*. London; New York: Routledge
- Sessions, R., 1971. *Musical Experience of Composer, Performer, Listener*. Princeton NJ: Princeton Legacy Library
- Shaviro, S., 2007. "The "Wrenching Duality" of Aesthetics: Kant, Deleuze, and the "Theory of the Sensible"". [shaviro.com](http://www.shaviro.com/Othertexts/SPEP.pdf). Accessed online 4 March 2018: <http://www.shaviro.com/Othertexts/SPEP.pdf>
- . 2009. *Without Criteria: Kant, Whitehead, Deleuze, and Aesthetics* Cambridge, Mass.; London: MIT
- . 2014. *The Universe of Things: On Speculative Realism*. Minneapolis; London: University of Minnesota Press
- . 2015a. *Discognition*. London: Repeater Books



- . 2015b. "Whitehead and Speculative Realism". Talk at University of California, Irvine. YouTube video. Accessed online 4 March 2018: <https://www.youtube.com/watch?v=WitoNJ-qdCU>
- Sheldrake, R., 2016. "The Extended Mind: Is consciousness confined to the body?". Video. *iai Player*. Accessed online 4 March 2018: <https://iai.tv/video/the-extended-mind>
- Shelley, J., "The Concept of the Aesthetic". *The Stanford Encyclopedia of Philosophy* (Winter 2017 Edition), Edward N. Zalta, ed.. Accessed online 5 March 2018 <https://plato.stanford.edu/archives/win2017/entries/aesthetic-concept/>
- Sherwin, A., 2015. "The Media Column: The music business is starting to think the next big thing is just a computer algorithm away". *Independent*. Accessed online 3 March 2018: <http://www.independent.co.uk/news/media/the-media-column-the-music-business-is-starting-to-think-the-next-big-thing-is-just-a-computer-10171475.html>
- Shull, J., 2006. "Locating the Past in the Present: Living Traditions and the Performance of Early Music". *Ethnomusicology Forum*, 06, vol. 15, no. 1, pp. 87-111
- Shusterman, R., 2008. *Body Consciousness: A Philosophy of Mindfulness and Somaesthetics*. Cambridge: Cambridge University Press
- Sibelius, J., 2018. "About Conducting". Jean Sibelius in his own words. Accessed online 5 March 2018: [http://www.sibelius.fi/english/omin\\_sanoin/ominsanoin\\_13.htm](http://www.sibelius.fi/english/omin_sanoin/ominsanoin_13.htm)
- Silverman, D., 2010. *Doing Qualitative Research: A Practical Handbook*. 3rd ed. London: SAGE
- Sim, S. and Open University AA301/Course readers, 1992. *Art : Context and Value*. Milton Keynes: Open University
- Simon, P., 1964. *Wednesday Morning, 3 A.M.* Song lyric. *Genius*. Accessed online 4 March 2018: <https://genius.com/Simon-and-garfunkel-wednesday-morning-3-am-lyrics>
- . 1977. *Slip Slidin' Away*. Song lyric. *Genius*. Accessed online 5 March 2018: <https://genius.com/Paul-simon-slip-slidin-away-lyrics>
- Singer, P., ed., 1986. *Applied Ethics*. Oxford: Oxford University Press
- Skillings, D.J., 2017. "Life is not easily bounded". *Aeon*. Accessed online 4 March 2018: <https://aeon.co/essays/what-constitutes-an-individual-organism-in-biology>
- Sloboda, J.A., I. Deliège and J.W. Davidson eds., 2011. *Music and the Mind: Essays in Honour of John Sloboda*. New York; Oxford: Oxford University Press
- Small, C., 1998. *Musicking: The Meanings of Performing and Listening*. Hanover; London: University Press of New England
- Smith, M., 2015. "Perspectives from Loop: New frontiers of music tech". *Loop Ableton*. Accessed online 3 March 2018: <https://www.ableton.com/en/blog/new-frontiers-of-music-tech/>
- Solomon, R.C., 1973. "Emotions and Choice". *The Review of Metaphysics*, Sep., vol. 27, no. 1, pp. 20-41
- Sontag, S., ed. 1993. *A Barthes Reader*. London: Vintage
- Sorensen, R., 2011. "Vague Music". *Philosophy*, 04, vol. 86, no. 2, pp. 231-248
- Spivak, G., 1996. "Explanation and culture Marginalia", in *The Spivak Reader. Selected works of Gayatri Chakravorty Spivak*, eds. D. Landry and G. MacLean. New York: Routledge
- Stansbie, A., 2014. "Between Palsticity and Performance: an ontological account of electroacoustic music". *Emille: Journal of the Korean Electro-Acoustic Music Society*

- Stela, E., 2016. "Future Humans: Will Our Bodies Become Multiplanetary?". *Ethnomusicology Review*. Accessed online 4 March 2018: <https://www.ethnomusicologyreview.ucla.edu/content/future-humans-will-our-bodies-become-multiplanetary>
- Stengers, I., 2011. *Thinking With Whitehead*. Trans. Michael Chase. Cambridge MA: Harvard University Press
- Stiegler, B., 1998. *Technics and Time 1: The Fault of Epimetheus*. Trans. Richard Beardsworth and George Collins. Stanford CA: Stanford University Press
- . 2009. *Technics and Time 2: Disorientation*. Trans. Stephen Barker. Stanford CA: Stanford University Press
- . 2011. *Technics and Time 3: Cinematic Time and the Question of Malaise*. Trans. Stephen Barker. Stanford CA: Stanford University Press
- . 2019. *The Age of Disruption: Technology and Madness in Computational Capitalism*. Trans. Daniel Ross. Cambridge: Polity Press. First published in French as *Dans la disruption. Comment ne pas devenir fou?* Les Liens qui Libèrent, 2016.
- Stock, K. ed., 2007. *Philosophers on Music: Experience, Meaning, and Work*. Oxford: Oxford University Press
- Stolnitz, J., 1965. *Aesthetics*. Macmillan Co.; Collier-Macmillan: New York; London
- Storr, A., 1992. *Music and the Mind*. London: Harper Collins
- St. Pierre, E. A. 1997, "Methodology in the fold and the irruption of transgressive data". *Qualitative studies in education*, vol 10. no. 2, pp. 175 – 189
- St.Pierre, E.A. and W.S. Pillow, eds., 2000. *Working the ruins: Feminist poststructural theory and methods in education*. New York: Routledge.
- St.Pierre, E.A., 2001. "Coming to theory: Finding Foucault and Deleuze". In K. Weiler ed., *Feminist engagements: Reading, resiting and revisioning male theorists in education and cultural studies* pp. 141-163. New York & London: Routledge.
- St.Pierre, E.A., 2011. "Post qualitative research: The critique and the coming after". In N.K. Denzin and Y.S. Lincoln, eds., *SAGE Handbook of Qualitative Enquiry*, (4th Edition, pp. 611-635). Los Angeles CA: SAGE
- Strawson, P.F., 1964. *Individuals: An Essay in Descriptive Metaphysics*. London: University Paperbacks
- Subbaraman, N., 2016. "His Brain Can't Make New Memories — So He Built An App To Store Them Instead". *BuzzFeed News*. Accessed online 4 March 2018: [https://www.buzzfeed.com/nidhisubbaraman/memory-app-for-that?utm\\_term=.fpe9gw6x9#.vldBpmjeB](https://www.buzzfeed.com/nidhisubbaraman/memory-app-for-that?utm_term=.fpe9gw6x9#.vldBpmjeB)
- Sutton, D. and D. Martin-Jones eds., 2008. *Deleuze Reframed: A Guide for the Arts Student*. London: I. B. Tauris
- Tagg, P., 2012. *Music's Meanings A modern Musicology for Non-Musos*. Larchmont NY and Huddersfield UK: The Mass Media Music Scholars' Press (MMMSP)
- Talbot, M., ed. 2000. *The Musical Work: Reality or Invention?* Liverpool Music Symposium. Liverpool: University of Liverpool
- Tallis, R., 2004. *Why the Mind is not a Computer: A Pocket Lexicon of Neuromythology*, 2nd ed. Exeter: Imprint Academic

- . 2014. *Summers of Discontent: The Purpose of the Arts Today*. London: Wilmington Square Books
- Tanner, M., 1987. *Nietzsche: A Very Short Introduction*. Oxford: Oxford University Press
- Taruskin, R., 1995. *Text and Act: Essays on Music and Performance*. New York: Oxford University Press
- Thomasson, A. 2006. "Debates about the ontology of art: What are we doing here?" *Philosophy Compass*, 1, 245–255.
- . 2015. *Ontology Made Easy*. Oxford: Oxford University Press
- Thomson, P., 2017. "vignette variations". *Patter Blog*. Accessed online 4 March 2018: <https://patthomson.net/2017/05/29/variations-to-the-journal-article-genre/>
- Tipler, F.J., 1994. *The Physics of Immortality: Modern Cosmology, God, and the Resurrection of the Dead*, 1st ed. New York: Doubleday
- Titlow, J.P., 2015. "The Real Magic Of Streaming Music Is The Data It Generates". *Fast Company*. Accessed online 3 March 2018: <https://www.fastcompany.com/3035552/the-real-magic-of-streaming-music-is-the-data-it-generates>
- Toft, R., 2010. "Hits and Misses: Crafting a Pop Single for the Top-40 Market in the 1960s". *Popular Music*, 05, vol. 29, no. 2, pp. 267-281
- Tomlinson, G., 2015. *A Million Years of Music: The Emergence of Human Modernity*. New York: Zone Books
- Toynbee, J., 2000. *Making Popular Music: Musicians, Creativity and Institutions*. London: Arnold
- Trafton, A., 2015. "Music in the brain". *MIT News*. Accessed online 4 March 2018: <http://news.mit.edu/2015/neural-population-music-brain-1216>
- Treitler, L., 1993. "History and the Ontology of the Musical Work". *The Journal of Aesthetics and Art Criticism*, Summer, vol. 51, no. 3, Philosophy and the Histories of the Arts, pp. 483-497
- Trenholm, R., 2014. "Rewind: This Raspberry Pi cassette player plays Spotify tunes from actual tapes". *C/Net*. Accessed online 4 March 2018: <https://www.cnet.com/news/rewind-this-raspberry-pi-cassette-player-plays-spotify-tunes-on-actual-tapes/>
- Tufte, E.R., 2001. *The Visual Display of Quantitative Information*. 2nd ed. Cheshire, Conn.: Graphics Press
- Velardo, V., 2015. "Review of the Study Day on Computer Simulation of Musical Creativity". *Academia*. Accessed online 3 March 2018: [https://www.academia.edu/19690264/Review\\_of\\_the\\_Study\\_Day\\_on\\_Computer\\_Simulation\\_of\\_Musical\\_Creativity](https://www.academia.edu/19690264/Review_of_the_Study_Day_on_Computer_Simulation_of_Musical_Creativity)
- Vitale, C., 2014. *Networkologies*. Alresford: Zero Books (Kindle edition)
- von Moltke the Elder, H. 2018. Wikiquote. Accessed online 4 March 2018: [https://en.wikiquote.org/wiki/Helmuth\\_von\\_Moltke\\_the\\_Elder](https://en.wikiquote.org/wiki/Helmuth_von_Moltke_the_Elder)
- vtol, 2017. "Performance of the Flesh". Video of art installation. Accessed online 3 March 2018: <http://performanceoftheflesh.tumblr.com/post/158148710008/prostheticknowledge-until-i-die-installation>
- Wagner, R., 1893. *Opera and Drama*. Trans. William Ashton Ellis. New York: Broude Brothers
- Walton, K.L., 1984. "Transparent Pictures: On the Nature of Photographic Realism". *Critical Inquiry*, Dec., vol. 11, no. 2, pp. 246-277



- Warburton, N., 2017. "New realities are imminent: how VR reframes big questions in philosophy — Interview with David Chalmers". *Aeon*. Accessed online 4 March 2018: <https://aeon.co/videos/new-realities-are-imminent-how-vr-reframes-big-questions-in-philosophy>
- Weisethaunet, H., 2007. "Historiography and Complexities: Why is Music 'National'?". *Popular Music History*, 08, vol. 2, no. 2, pp. 169-199
- Weissman, J., 2014. "Technoscience and Expressionism". *Fractal Ontology Blog*. Accessed online 4 March 2018: <https://fractalontology.wordpress.com/2014/07/16/technoscience-and-expressionism/>
- We The Humanities, 2016. Website for a Twitter Account. Domain expired as at 8 March 2018
- Wetherell, M., 2012. *Affect and Emotion: A New Social Science Understanding*. Los Angeles ; London: SAGE
- White, H., 1997. "If It's Baroque, Don't Fix It': Reflections on Lydia Goehr's 'Work-Concept' and the Historical Integrity of Musical Composition". *Acta Musicologica*, Jan. - Jun., vol. 69, no. 1, pp. 94-104
- Whitehead, A.N., 1929. *Process and Reality: An Essay in Cosmology*. New York: The Free Press. Accessed online 4 March 2018: [https://archive.org/stream/AlfredNorthWhiteheadProcessAndReality/Alfred%20North%20Whitehead%20-%20Process%20and%20Reality\\_djvu.txt](https://archive.org/stream/AlfredNorthWhiteheadProcessAndReality/Alfred%20North%20Whitehead%20-%20Process%20and%20Reality_djvu.txt)
- Wilkinson, R. and Open University AA301/Set book., 1991. *Theories of Art and Beauty*. Milton Keynes: Open University
- Wilson, E., 2018. Wikiquote. Accessed online 4 March 2018: [https://en.wikiquote.org/wiki/Edmund\\_Wilson](https://en.wikiquote.org/wiki/Edmund_Wilson)
- Wilson, E.O., 1999. *Consilience: The Unity of Knowledge*. London: Abacus
- Winch, P., 1987. *Trying to Make Sense*. Oxford: Basil Blackwell
- Wittgenstein, L., 1966. *Lectures & Conversations on Aesthetics, Psychology, and Religious Belief*. C. Barrett (ed.). Berkeley: University of California Press
- \_\_\_\_\_. 1967. *Zettel*. G.E.M. Anscombe, and G.H. Von Wright (eds.). Trans. G.E.M. Anscombe. Berkeley: University of California Press
- \_\_\_\_\_. 1969. *On Certainty*. G.E.M. Anscombe and G.H von Wright (eds.). Trans. Denis Paul and G.E.M. Anscombe. New York: Harper
- \_\_\_\_\_. 1969. *Preliminary Studies for the "Philosophical Investigations", generally known as The Blue and Brown Books*. 2nd ed. Oxford: Basil Blackwell
- \_\_\_\_\_. 1974. *Tractatus Logico-Philosophicus*. Trans. D. F. Pears & B. F. McGuinness, with the introduction by Bertrand Russell. London: Routledge & Kegan Paul
- \_\_\_\_\_. 1977. *Remarks on Colour*. G.E.M. Anscombe (ed.). Trans. Linda L. McAlister and Margarete Schättle. Oxford: Blackwell
- \_\_\_\_\_. 1989. *Wittgenstein's Lectures on the Foundations of Mathematics, Cambridge, 1939: from the notes of R.G. Bosanquet, Norman Malcolm, Rush Rhees, and Yorick Smythies*. C. Diamond (ed.) Chicago: University of Chicago Press
- \_\_\_\_\_. 2009. *Philosophical Investigations*. Trans. G.E.M. Anscombe, P.M.S. Hacker and J. Schulte. Rev. 4th ed. Chichester: Wiley-Blackwell
- Wollheim, R., 1980. *Art and its Objects: With Six Supplementary Essays*. 2d ed. Cambridge; New York: Cambridge University Press

- Womack, K. ed., 2009. *The Cambridge Companion to The Beatles*. Cambridge: Cambridge University Press
- Wyatt, J., K. Gale, S. Gannon and B. Davies, 2011. *Deleuze & Collaborative Writing: An Immanent Plane of Compositions*. New York: Peter Lang
- Youmans, C., ed., 2010. *The Cambridge Companion to Richard Strauss*. Cambridge: Cambridge University Press
- Young, D. and G. Priest, 2017. "It is and it isn't: Marcel Duchamp's 'Fountain' is not just a radical kind of art. It's a philosophical dialetheia: a contradiction that is true". *Aeon*. Accessed online 4 March 2018: <https://aeon.co/essays/how-can-duchamp-s-fountain-be-both-art-and-not-art>
- Yu, P.K., 2011. "Digital Copyright and Confuzzling Rhetoric". *Vanderbilt Journal of Entertainment & Technology Law*, Summer 2011, vol. 13, no. 4, pp. 881-939
- Zangwill, N., 2007. *Aesthetic Creation*. Oxford: Oxford University Press
- Zdebik, J., 2012. *Deleuze and the Diagram: Aesthetic Threads in Visual Organization*. New York: Continuum
- Zepke, S. and S. O'Sullivan, eds., 2010. *Deleuze and Contemporary Art*. Edinburgh: Edinburgh University Press
- Žižek, S., 2016. *Disparities*. New York; London: Bloomsbury

## **Vignettes' Participants Bibliographic References**

### **Matthew Whiteside**

W1: Whiteside's questionnaire response.

W2: 2015. "Interview with Matthew Whiteside". *M Magazine*. Accessed online 8 March 2018: <https://www.m-magazine.co.uk/features/interviews/interview-matthew-whiteside/>

W3: 2015. "Two Worlds Collide". *R-Space Gallery*. Accessed online 8 March 2018:

W4: 2015. "When Two Worlds Collide Walk Around". YouTube video. Accessed online 8 March 2018: <https://www.youtube.com/watch?v=8LZJ8Dh6TFo>

W5: 2018. Matthew Whiteside, Spotify collection. Accessed online 8 March 2018: <https://open.spotify.com/artist/5O6zANklw2xYdZV9oWnpeC>

W6: 2016. "Matthew Whiteside; Biography". British Music Collection: Accessed online 8 March 2018: <https://britishmusiccollection.org.uk/composer/matthew-whiteside>

W7: Bruce, K., 2016. "Music review: Cappella Nova sing Echoes and Traces in Stirling Castle Chapel" *The Herald*. Accessed online 8 March 2018: [http://www.heraldscotland.com/arts\\_ents/14719762.Music\\_review\\_Cappella\\_Nova\\_sing\\_Echoes\\_and\\_Traces\\_in\\_Stirling\\_Castle\\_Chapel/](http://www.heraldscotland.com/arts_ents/14719762.Music_review_Cappella_Nova_sing_Echoes_and_Traces_in_Stirling_Castle_Chapel/)

W8: 2014. "Culture Night 2014: Matthew Whiteside / Joanna Nicholson: An extract from the premiere of Matthew Whiteside's 'Three Pieces for Bass Clarinet and Electronics', performed by Joanna Nicholson". Vimeo video. Accessed online 8 March 2018: <https://vimeo.com/111059821>

W9: Rockson, G., 2015. "Classical CDs Weekly: Adams, Bliss, Matthew Whiteside: Great contemporary Americana, English piano music and electro-acoustic sounds from Glasgow".

*The Arts Desk*. Accessed online 8 March 2018: <http://www.theartsdesk.com/classical-music/classical-cds-weekly-adams-bliss-matthew-whiteside>

W10: Dooley, S., 2016. "Alt Notes #9 | Matthew Whiteside". *Headstuff: Music*. Accessed online 8 March 2018: <https://www.headstuff.org/music/music-features/alt-notes-matthew-whiteside/>

W11: Whiteside, M., 2016. "Why New Music? by Matthew Whiteside (composer)". *Sound Scotland*. Accessed online 8 March 2018: <http://sound-scotland.co.uk/explore/why-new-music-by-matthew-whiteside-composer>

W12: Whiteside, M., 2018. *Always Ever Unknowable* mp3 file. Accessed online 13 March 2018: <https://www.dropbox.com/s/5wtlfm0x2xy9zcf/Always%2520Ever%2520Unknowable.mp3?dl=0>

## **Mihailo Trandafilovski**

T1: Tandafilovski's questionnaire response

T2: 2018. Mihailo Trandafilovski: Personal website. Accessed online 8 March 2018: <http://www.trandafilovski.com>

T3: Kreuzer Quartet (Peter Sheppard Skaerved, Mihailo Trandafilovski, Neil Heyde, Eve Heyde, with Roderick Chadwick) (Composer: Mihailo Trandafilovski) *Five*. CD recording. London: Innova (#914). Accessed online 8 March 2018: <https://www.innova.mu/albums/mihailo-trandafilovski/five>

T4: Mihailo Trandafilovski, Spotify Collection. Accessed online 8 March 2018: <https://open.spotify.com/artist/1ZsEDzjMLtYO352B3ZSFpV>

T5: Heaton, R., 2013. "Magnets, lava, crystals: clarinet quintet by Mihailo Trandafilovski.". Library audio catalogue. *Bath Spa University Library*. Accessed online 8 March 2018: <http://researchspace.bathspa.ac.uk/1616/>

T6: The British Museum, 2016. "Performance Music from Alexander the Great's empire". Concert advertisement. Accessed online 8 March 2018: [http://www.britishmuseum.org/pdf/events/2930\\_1036\\_Music\\_from\\_Alexander\\_the\\_Great's\\_empire\\_programme\\_140616.pdf](http://www.britishmuseum.org/pdf/events/2930_1036_Music_from_Alexander_the_Great's_empire_programme_140616.pdf)

T7: 2012. *Mihailo Trandafilovski: Chamber Music*. (Perf. Odaline de la Martinez, Kreutzer Quartet) Presto Classical. Lorelt. LNT132. Accessed online 8 March 2018: <https://www.prestoclassical.co.uk/classical/products/8005157--trandafilovski-chamber-music>

T8: Trandafilovski, M., 2006. *Introducing Elements of Contemporary Music in the Process of Violin Teaching*. DMus thesis. Centre for Performance Science, Royal College of Music, London. Summary accessed online 8 March 2018: <http://www.rcm.ac.uk/cps/archive/people/trandafilovski/>

## **Julian Broadhurst**

B1: Broadhurst's questionnaire response 1

B2: Broadhurst's questionnaire response 2

B3: Broadhurst's questionnaire response 3

B4: Broadhurst's questionnaire response 4

B5: *Julian Broadhurst: Drowning Circle*. Website. Accessed online 8 March 2018: <http://www.drowningcircle.com>

- B6: 2018. Julian Broadhurst: Bandcamp Collection. Bandcamp. Accessed online 8 March 2018: <https://julianbroadhurst.bandcamp.com>
- B7: "The Measure of Autumn". Music recording by Tetlow & Broadhurst. *Bandcamp*. Accessed online 8 March 2018: <https://tetlowandbroadhurst.bandcamp.com/album/the-measure-of-autumn>
- B8: 2018. "British Library Upload Data: *julian* Broadhurst – Uploading Guide to order, with suggested cross references and Links, the volumes of my DCM Edition." Personal correspondence.
- B9: 2018. "English Contemporary Composer and Percussionist - Director of Drowningcircle music - DCM" Biography. *Encore Music*. Accessed online 8 March 2018: <https://encoremusicians.com/Julian-Broadhurst>
- B10: 2018. *David Dhonau*. Website. Accessed online 8 March 2018: <http://daviddhonau.co.uk/index.php>
- B11: 2015. "Julian Broadhurst: Journey's End". *Plainly Painting: David Manley*. Blog. Accessed online 8 March 2018: <https://davidmanley.wordpress.com/tag/julian-broadhurst/>
- B12: Facebook Group, *IF-DCM The - DCM International Forum for Contemporary Music*: <https://www.facebook.com/groups/894449547326748/>
- B13: On Revisiting *Countout 1 & 2*. Private correspondence 11 March 2018
- B14: 2019. British Music Collection, Composers' Pages: *Julian Broadhurst*. Accessed online 17 July 2019 [https://britishmusiccollection.org.uk/node/63456?fbclid=IwAR2YPVWAR9oLnP-9SEKWz9r8Dw17eAFyIUFSURAD\\_BbJbOtJqIDi-sg1J2M](https://britishmusiccollection.org.uk/node/63456?fbclid=IwAR2YPVWAR9oLnP-9SEKWz9r8Dw17eAFyIUFSURAD_BbJbOtJqIDi-sg1J2M)

## Alex McLean

- M1: McLean's questionnaire response
- M2: TOPLAP website. Accessed online 8 March 2018: <https://toplap.org/about/>
- M3: Algorave website. Accessed online 8 March 2018: <https://algorave.com>
- M4: McLean, A., 2017. "Algorave: algorithmic dance culture". TEDX, Hull.  
YouTube video. Accessed online 8 March 2018: <https://www.youtube.com/watch?v=nAGjTYa95HM>
- M5: 2018. *Yaxu*, Website. Accessed online 8 March 2018: <https://yaxu.org>
- M6: 2018. *Alex McLean: Making Music with Text[ure]*. Website. Accessed online 8 March 2018: <https://slab.org>
- M7: 2018. *Algomech Festival*. Website. Accessed online 8 March 2018: <http://algomech.com/2017/>
- M8: 2016. McLean, A. and H. Redler. "Data as Culture exhibition: Thinking Out Loud". *Open Data Institute*. Accessed online 8 March 2018: <https://theodi.org/event/data-as-culture-exhibition-thinking-out-loud/>
- M9: Magnusson, T., 2017. "Special Issue: Live Coding". *Sonic Writing*. Accessed online 8 March 2018: <http://www.sonicwriting.org/blog/livecoding>
- M10: McLean, A., 2004. "Hacking Perl in Nightclubs". *Perl*. Accessed online 8 March 2018: <https://www.perl.com/pub/2004/08/31/livecode.html/>

- M11: Sicchio, K. and A. McLean, 2017. "Sound Choreographer <> Body Code". *Contemporary Theatre Review*. Accessed online 8 March 2018: <https://www.contemporarytheatrereview.org/2017/sound-choreographer-body-code/>
- M12: Grosse, D., 2018. "Podcast 210: Alex McLean". *Art + Music + Technology*. Podcast. Accessed online 8 March 2018: <http://artmusictech.libsyn.com/podcast-210-alex-mclean>
- M13: McLean, A., 2018. "Weaving TidalCycles patterns at a TC-1 loom". *Penelope*. Accessed online 5 March 2018: <https://penelope.hypotheses.org/630>
- M14: McLean, A., 2018. "Hacking Sound in Context.". *Generative*. Accessed online 8 March 2018: <http://generative.net/papers/hacking/index.html>
- M15: McLean, A., 2017. "Live Coding". *Medium*. Accessed online 8 March 2018: <https://medium.com/potac/live-coding-1eb06f0ddf26>
- M16: Searle, L., 2017. "Review: AlgoMech Festival 2017". *The State of the Arts*. Accessed online 8 March 2018: <http://www.thestateofthearts.co.uk/features/algomech-festival-2017/>
- M17: Magnusson, T., 2016. "Arts Research Symposium at AlgoMech". *Sonic Writing*. Accessed online 8 March 2018: <http://www.sonicwriting.org/blog/algomech>
- M18: 2016. "Algorave Festival". *The Wire*. Accessed online 8 March 2018: <https://www.thewire.co.uk/news/44278/algorave-festival-this-november>
- M18: Visnjic, F., 2016. "'Spicule' by Yaxu – Album as a live coding device on Pi Zero". *Creative Applications Network*. Accessed online 8 March 2018: <http://www.creativeapplications.net/sound/spicule-by-yaxu-album-as-a-live-coding-device-on-pi-zero/>
- M19: 2018. *Alex McLean*. Wikipedia. Accessed online 8 March 2018: [https://en.wikipedia.org/wiki/Alex\\_McLean](https://en.wikipedia.org/wiki/Alex_McLean)